Home An Argus Specialist Publication No. 60 May 1-7, 1984 An Argus Specialist Publication An Arg

EREE

24-page supplement for VIC-20 and Commodore 64 users add-on guide, using graphics, a fun VIC-20 game, and screen designer

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Software reviews for: spectrum, BBC, Oric, Sord, TI, Commodore 64

to type in for your Spectrum and Oric

Tatung's new micro: all the details

J.S. Scene, news, charts...



Rabbit: 'We'll go on without Alan'

Heather Lamont, sole boss of Rabbit Software following Alan Savage's suicide, has vowed: "We will carry on."

Rabbit's 25-strong staff were stunned when they heard that Mr Savage, 36, had hung himself after a motorway crash.

He had been driving his white Mercedes, a recently restored collector's mdoel, when he ran a VW Polo off the M10 in Buckinghamshire.

The VW finished upside down in a ditch, trapping and injuring a woman driver of 42 and her 73-year-old friend.

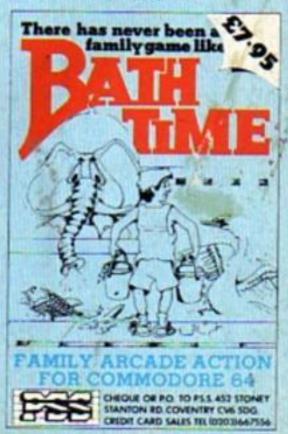
Mr Savage left on foot — leaving behind a woman friend — after an argument with the driver and police were alerted because the VW driver thought Continued on page 6

Computers help with the cooking

In a bid to make computers more useful around the house, two companies have launched menu-planning programs.

One of them, for the BBC micro, is by husband-and-wife team John and Yolande Smith. The other, from Bug-Byte for the Spectrum, contains 80 recipes from professional chef Ian Hoare.

Mrs Smith, a 53-year-old mother of two, said: "Women don't use computers, so what Continued on page 6





Flicht Poth 7/E



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REGULARS

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SOFTWARE REVIEWS

Useful and fun	
What will they learn?	

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New	games	for	the	Sord	N	15	5 8	an	d	tl	ne	T	I	-9	9	/4	A						

There's a free 24-page supplement in this issue for users of the VIC-20 and Commodore 64. This is what's inside it:

- a buyer's guide to add-ons
- a Pixel-Pad screen designer for the Commodore 64
- how to create good-looking graphics for your games
- a free-to-enter competition for Bubble Bus software
- a game with a difference for the VIC-20



PROGRAMS

Spectrum										8
Three quality-t	tested	game	s to	typ	e in	: tackle	e the	Hall	of	Mirrors,
sort the mail ar	nd pla	y pati	enc	e						

Two games to play: find the keys to escape... eat the Mouldfish to

...you'll find listings for these two computers in our 24-page supplement

Readers: we welcome your programs, articles and tips — see the panel in this issue for details

Software houses: send your software for review to the editor.

Contact him for competitions and other promotions, as well

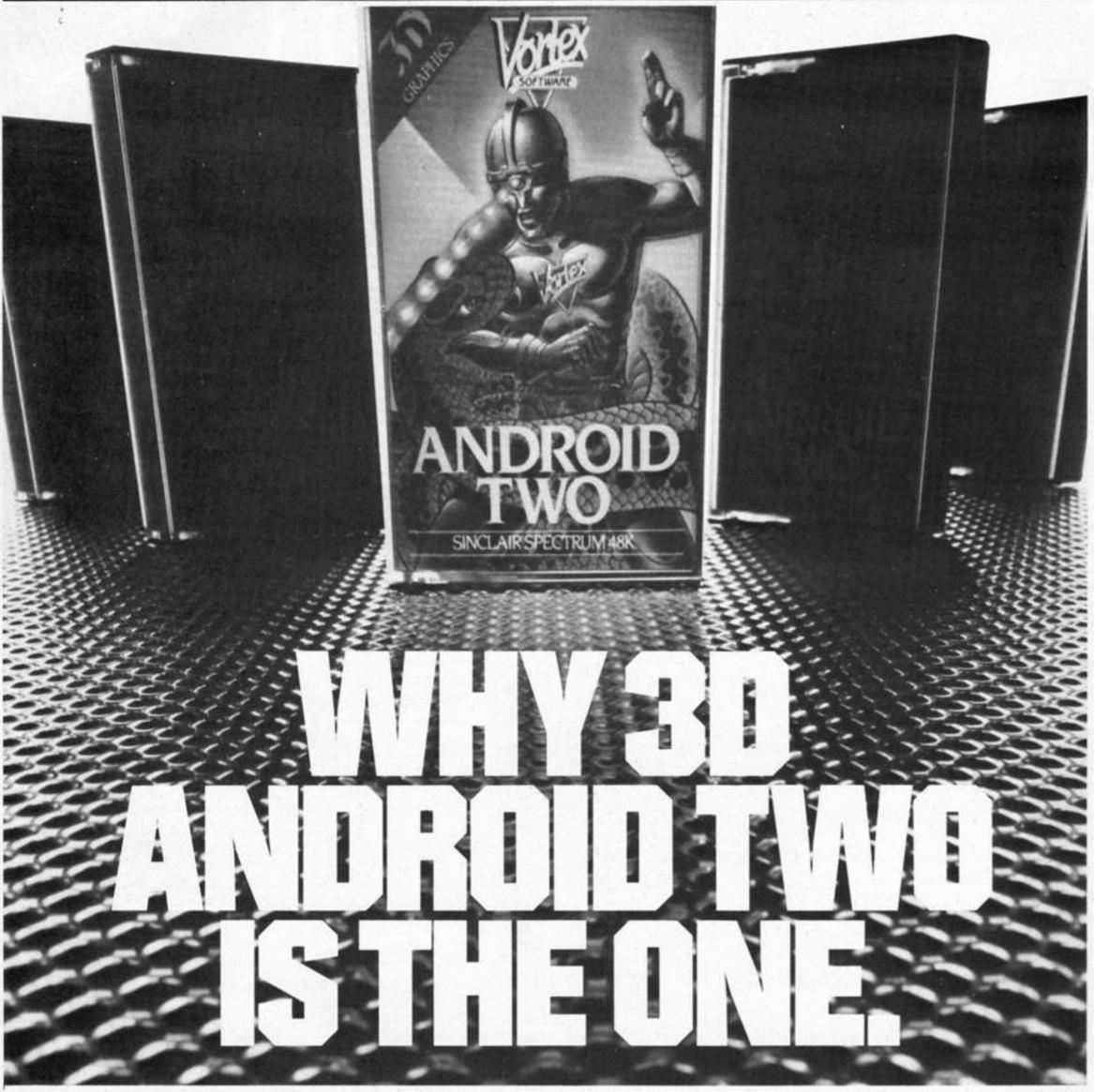
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Revealed: the Einstein

micro from Tatung

Tatung is aiming to hit computers like Acom's BBC micro with its new Einstein, which offers 64K of RAM, a 3in disc drive and 67 typewriter-style keys for £499.

Sales boss Mike Bayliss said it would cost an extra £560 to give the £399 BBC computer the

same features.

The Einstein

with Tatung's colour monitor

computer

Made and designed in Britain by the UK arm of a giant Taiwanese company, Einstein deliveries start in June and 50,000 are planned for this year.

Dr Bayliss said the Einstein was an up-market computer designed for the home enthusiast, education and small business. An Apple IIE with similar specifica-

tion would be £1,010.

The Einstein's disc operating system handles programs running under CP/M, the industry standard system for business software. The DOS and BASIC are on a disc supplied with the computer. This is to allow other languages to be used without losing memory to a built-in BASIC.

Asked about the Amstrad computers, launched a week earlier, technical boss Roy Clarke said the Einstein was 25 per cent faster, the BASIC was more extensive, the keyboard more reliable and longer lasting and more RAM was available to the user.

When BASIC had been loaded, 48K could be used and just over 43K was available with both BASIC and the DOS

loaded.

Amstrad's two cassette computers had 42K available to BASIC. The available memory in its two disc models was not known. Amstrad's prices are £329 for cassette model with colour monitor and £529 for 3in disc model with colour monitor. With green screen the prices are £100 lower.

Dr Clarke said the Einstein was intended to fill the gap bet-

Einstein BASIC keywords

ABS ADC analogue/ **ERRS** MIDS RST restart ERL error line MODulus RUN **EVAL**uate digital MON m/c monitor SAVE AND MULS multiple **SCRNS** APPEND FILL SEP redef. of string ASC FMT format MUSIC separators ATN FN function NEW SGN FOR AUTO line NEXT SHAPE GCOL graphics numbering NOT SIN **BCOL** background colour NULL SIZE memory left GOSUB SPEED output delay (0-255) OFF BEEP GOTO BINS ON...GOTO HEXS SPRITE ON ... GOSUB OPEN disc file BTN HOLD pause SPRITE OFF CALL SQR CHAIN CHR\$ INCH wait for STEP OR key input INCHS ORIGIN STOP **OUT**put CLEAR STR\$ PEEK CLOSE INPut from port SWAP bytes CLS INPUT TAB PLOT INPUT# TAN cos INTeger TCOL text colour POINT CREATE file IOM i/o modify POKE TEMPO DATA KBD keyboard POLYgon THEN DEEK KBD\$ POP TI\$ set/print time POSition of csr. **DEFine** function KEY define UNLOCK file **DEGrees** function keys PRINT PRINTAT DELete KEY LIST contents UNPLOT DIM of function contents PROTect VAL **LEFTS** DIRectory VDEEK PSG sound gen. DOKE LENgth PTR pointer VDOKE DOS RADian VERIFY DRAW LIST READ VOICE DRIVE LSTPrint REM VPEEK ELLIPSE LN natural log REName VPOKE LOCK ELSE RENUM END RESTORE WIDTH of text EOF LOG RETURN XOR RIGHTS RND ERAsc MAGnify ZONE print area ERRor MGE merge

ween computers costing £200-£300 and £1,000. He said: "It will be bought by people upgrading from micros like the Spectrum, those who want a better computer from square one and by businesses.

"There is so much talk of jam tomorrow. What we say is available will be available, not sometime next year or maybe never. And there's more than one offender."

The processor: Z80A, used in the Spectrum and others, running at 4MHz. Screen display is handled by a separate 16K Texas Instruments chip and the operating system is in an 8K ROM.

Display: 56 alphanumeric characters and 160 symbols - in a 5 x 7 grid — all of which can be redefined, plus 32 sprites, four in one line.

No. of horiz. vert. chars. colours pixels pixels

16 256 192 40/32 x 24

Keyboard: OWERTY with graphics symbols etched on fronts, eight function keys, 11 control and cursor keys.

Disc drive: made by Teac, each 3 in disc has a claimed capacity of 250K per side, or 200 K when formatted. Tatung branded discs are to be available. A second drive, costing£149, can be installed above and to the right of the keyboard. A separate drive will be £189 and a separate twin drive is planned.

Language/operating system: Tatung/Xtal BASIC, written by Crystal Research, allows users to add to the BASIC keywords and

the 32 error messages. It includes a full screen editor. Tatung says the DOS is designed to be easily understandable by first-time users.

Input/output: RS232-C, Centronics, four-channel analogueto-digital converter for joysticks etc, eight-bit user port, external disc drive connector, UHF TV, YUV/RGB for monitor, and the Tatung "Pipe" — a 60-way general purpose connector.

Sound: three channels, plus noise, with volume control and amplitude, pitch and evelope control in BASIC. Speaker measures

31/4 in by 21/4 in.

Software: games would cost £7-£15 and business software up to £250. Companies writing for the Einstein included: A&F. Kuma, Gem Software, Crystal, Leasalink Viewdata and Micro Simplex. At least 50 would be available straight away.

Peripherals: joysticks, £5; Tatung branded Shinwa dot matrix printer with Tatung ROM, £229; internal and external disc drives. As a launch offer there will be vouchers for £10 off the printer, extra drive and Tatung's 14in colour monitor, usually £240. Promised soon: a Prestel software upgrade. At the end of the year there would be a unit for 80column display, greater resolution, and more sprites, plus a speech synthesiser.

Tatung has an annual turnover of £500m and 25,000 employees - 800 of them in the UK. It makes home appliances, power plant and industrial equipment and has 30 subsidiaries, half in China and the rest in Asia, South Africa and Europe.

The Einstein was designed in its Bradford laboratory and is made in Bridgenorth, Shropshire, which also manufacturers products like Deccacolour TV sets. Tatung bought the plant from

Decca in 1981.

NEWS

Rabbit

From front page

he may have taken pills with drink.

Police searched with tracker dogs and Mr Savage's body was found slumped against a tree by a man walking his dog. He had hung himself with his belt.

Miss Lamont revealed that Mr Savage had his stomach pumped out after an earlier attempt to kill himself with an overdose. And two other cars, a BMW and a Jaguar-Daimler, had been badly damaged in recent accidents with Mr Savage at the wheel.

Miss Lamont said: "He had personal problems and when your mind isn't together they seem enormous. He felt his world was falling apart. I don't know if he was schizophrenic, but this is the sort of thing that happens. Perhaps the car crash was the last straw.

I had spoken to him that morning and he was fine. Obviously his mind was unstable and something clicked and he just couldn't cope. It was nothing to do with Rabbit — the company is doing fine.

"His ex-wife broke the news to me. I was absolutely sick. I can't explain the feeling. I was so totally shocked that I felt

On the surface Mr Savage seemed to have everything to live for. A few days before his death, he told HCW editor Paul Liptrot that Rabbit was thriving and spoke of his personal plans. Rabbit's premises near Wealdstone also includes Soft Copy, trade name for its own cassette duplication and blank tape operation.

Mr Savage, who trained as a communications engineer, was in the process of buying a £200,000 house in Hertfordshire and also planned to remarry. He recently had a hair transplant.

Miss Lamont, formerly an assistant manager at British Home Stores, joined Mr Savage in a technical staff agency which later turned to computer retailing under the name Cream Computers. Rabbit was formed about three years ago and computer sales ended.

Now Rabbit has a range of 17 titles for the Spectrum, VIC-20 and Commodore 64 — about 36 products counting those available for more than one computer.

A new title, Stalag 1, a comic arcade game for the Commodore 64, has just been released and Vortex, an arcade game for the Spectrum and Commodore 64, is due out in mid-May.

Miss Lamont said she owned 51 per cent of Rabbit's shares and Mr Savage owned the remaining 49 per cent. A will had not yet been found, but if it turned out that Mr Savage's shares went to his mother Miss Lamont said she would raise the money and offer to buy them. Rabbit's three-strong board consisted of Miss Lamont, Mr Savage and Miss Lamont's father, Arthur.

Miss Lamont said: "We are a good, solid company. We are in about the middle of the range. We are not like Imagine or the rest of them and we are not down at the bottom. But I don't really want to be in the big league."

Mr Savage, who lived in Willesden, was a car enthusiast. As well as the BMW, the Mercedes and the Jaguar-Daimler, he also drove a restored E-type Jaguar.

Asked if personal relationships could have led to the tragedy, Miss Lamont said: "Alan had been unstable for a long time and a lot of people passed through his life. There's no blame to put on anybody."

Paying tribute to him, she said: "OK, he had a troubled mind but he was a super person.

"He had a flair for the business. He gave a lot to Rabbit and he got a lot of enjoyment out of it. He had everything to live for but

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has converted this program

from the Spectrum, and both

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cost £9.95. Commodore disk

Richard Shepherd Software,

Elm House, 23-25 Elmshott

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to cassette or disk.

version costs £14.95.

Berks

You could be on our pages

We welcome programs, articles and tips from our readers. If you feel that your work meets our standards, please submit it to us for consideration for publication.

- Programs must always be sent on cassette. Listings are helpful, but not necessary. Check carefully that they are bug-free. Include details of what your program does, how it works, variables you have used and hints on conversion.
- Articles on using home computers should be no longer than 2,000 words. Don't worry about your writing ability - just try to keep to the style in HCW. Articles most likely to be published will help our readers make better use of their micros by giving useful ideas, possibly with programming examples. We will convert any sketched illustrations into finished artwork.
 - Tips are short articles, and brief programming routines. Your hints can aid other computer users.

All submissions will be acknowledged and the copyright in such works which will pass to Argus Specialist Publications Ltd will be paid for at competitive rates.

Keep a copy of your work and include an SAE. Label everything clearly and give a daytime and home phone number if you can.

Paul Liptrot, Home Computing Weekly,

Cooking

From front page

because of his mental state he

Terry Grant, said: "I was

devastated. Everyone here is

upset but we are all getting on

Rabbit's software director,

could not see it."

with out work."

can you do to attract them?

"At first I thought of a recipe book, but you can't take a computer into the kitchen. Then I thought: 'What is the most boring job you have to do?' That's deciding what to cook.

"Most women have 200 or 300 recipes in their minds, but you forget them and end up having chips every day."

What's to Eat?, on cassette for £9.95 and a disc version at £12.95, is designed to plan meals for everyday and for special occasions. When the choice is made - from a claimed 20,000 possible combinations - the menu is displayed, ingredients listed and a shopping list produced.

The program was written largely by Mr Smith with data from his wife, based on her years of cooking for the family.

Mr Smith, 54, a former electronics engineer, and Mrs Smith, a former civil servant, also produce business software. They call themselves Shumwari Associates. Mr Smith said Shumwari meant small friend in a south-east Asian language.

Bug-Byte's Computer Cookbook is in a two-cassette pack - one for the index and the other for the recipes - and costs £9.50.

Mr Hoare said his program started with a request from a friend for a popular recipe. He said: "As a joke, I tried to put the recipe into the computer."

After months of work, and the promise of a Bug-Byte contract, he has finished a program which now contains more than 80 of his recipes in imperial or metric measures and for any number of people up to 200. Wines to accompany the dishes are also given.

Bug-Byte says the program is more than just a cookery book. Using the index you could, for example, tell the computer you had some pork in the fridge and the program will select suitable recipes.

It will also list recipes by category, such as starters and desserts, simplicity and country of origin.

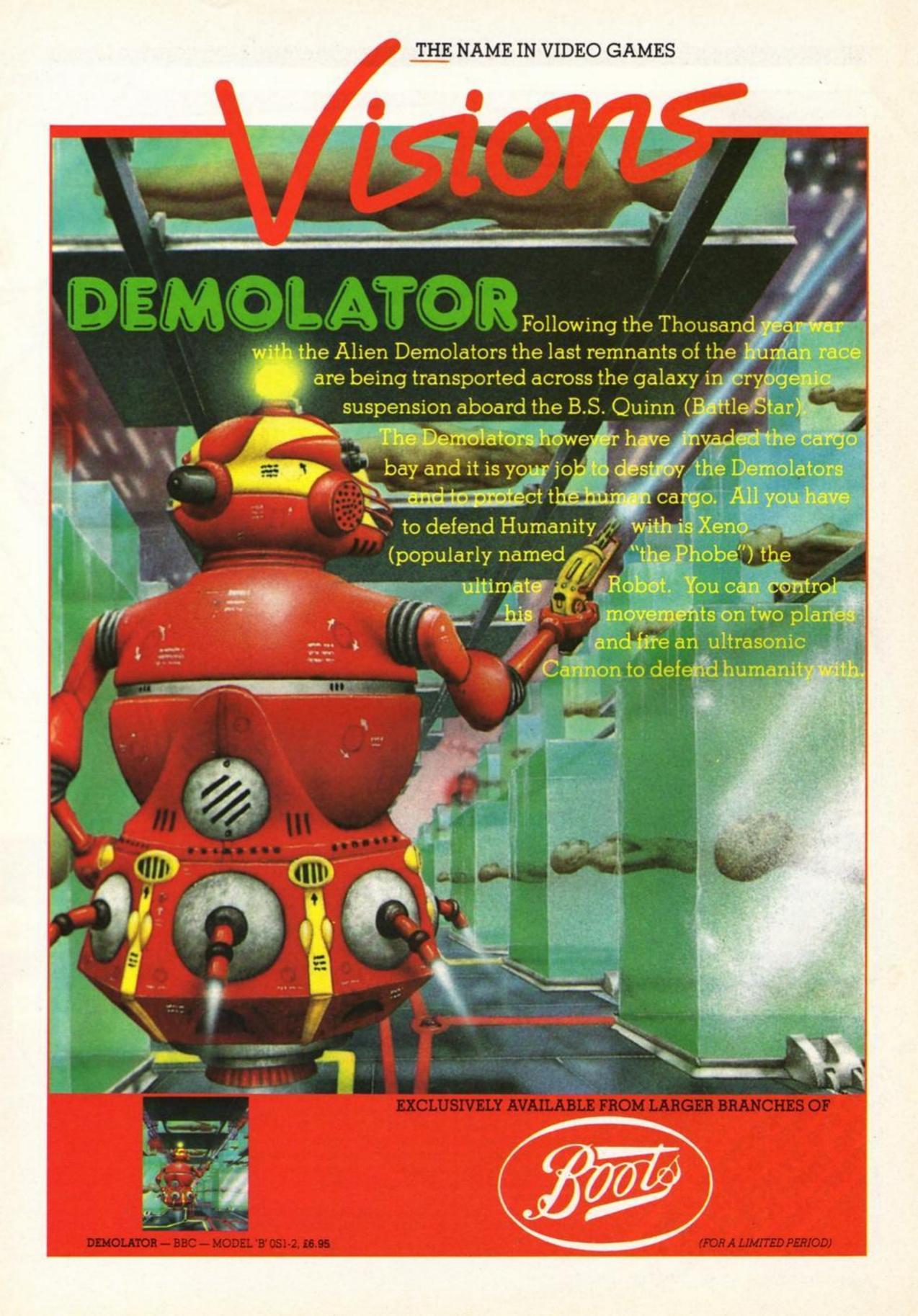
Shumwari Associates, 12 Marlin Ct, Marlow, Bucks SL7

Bug-Byte, Mulberry Hse, Canning Place, Liverpool L1 8JB

A lot of people cared for him.

All work for consideration should be sent to:

No.1 Golden Square, London W1R 3AB



Hall of Mirrors by David Nowotnik

Here's a game for all Spectrum users which should be both fun and educational. The main purpose is to demonstrate the principles of reflection in mirrors. And this you'll have to grasp quickly if you're aiming to achieve high scores.

When the game starts, the hall of mirrors is drawn and the computer gives you an aerial view. The walls of the building ar lined with mirrors which are arranged to alternate in the direction they face. More mirrors will appear inside the hall; some will always appear in the same place, while others are placed randomly, so each game is different.

There is one exit to the hall, at the top of the screen. By the exit is a colour scale, which is your target. The object of the game is to direct a beam of light such that it eventually hits one of the coloured boxes. If you can, you will obviously go for the green box for the maximum score.

On the screen you'll see a flashing "greater than" symbol on the left of the hall. This is the point from which the beam of light will emerge. It starts off going horizontally across the screen. You have to place a number of mirrors in the beams path to deflect the light onto the target box.

How it works

100-150 move character set from ROM

160 redirects CHARs
170-210 define new characters
240-290 machine code to block
move attribute file

1000-1250 set up the board 1260-1280 position set mirrors 1290-1340 position random mirrors

1500-1810 select positions and place mirrors onto the board 1815 machine code to copy the attribute file

1820-1920 draw the light beam 1950-1990 reflect the light beam 3000-3060 score message

5000-5040 light beam plotting routine

You can place up to five mirrors in the hall. To place a mirror, you'll need to enter the horizontal and vertical coordinates, and the direction of the mirror.

Main variables

a,b READ variables

att attribute check

c,c\$ INPUT variables for mirror

h,h\$ INPUT for horizontal position of mirror

mS,n\$ mirror characters

n the number of dots to be plotted.

score the running total

v,v\$ INPUT for vertical pos-

x,y co-ordinates of the random position mirrors

x1,y1 used in position calculation

zq a dummy variable used when calling machine code



Tackle the Hall of ors, sort the mail play patience

To help you with the coordinates, there are letters along
the sides of the hall, and the
inside of the hall is mapped out
like a chess board. So, decide
where you want to place a
mirror, enter the co-ordinates
of that position when you get
the screen prompt, and tell the
computer which mirror

type you want. This game uses double surface mirrors; that is,

they will reflect on both sides.

Once you have placed all the mirrors you want (up to a maximum of five) the light beam will be "fired". But to let you see what happens, I have dramatically reduced the speed of light! The beam will leave a trail to let you see where it has been.

And if you've planned the positions of your mirrors well, the light beam should

eventually hit one of the coloured boxes. However, if you find that all your plans have gone wrong, then you can start again by pressing CAPS SHIFT and S.

After a few goes you should be able to achieve the maximum score most times. And you should have grasped the ancient physics principle, that "the angle of incidence equals the angle of reflection".

Page 8 HOME C PAGE 17 A PAGE 18 HOME C PAGE 18 HOME

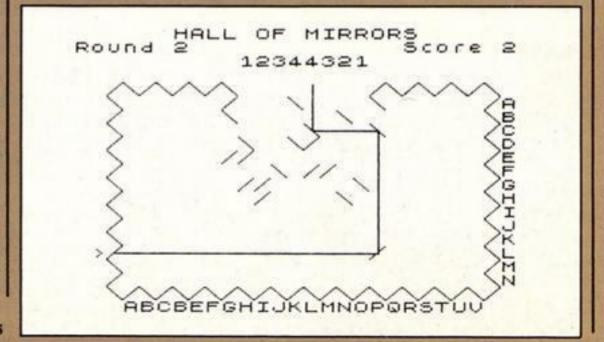
PROGRAMS



There are two small pieces of machine code in this game, so once you've entered the listing into your Spectrum, do SAVE it on tape before you attempt to RUN it, just in case. You only need one slight mistake with machine code to give you a crash, from which the only recovery is to pull out the plug — and lose the program!

Screen dump of Hall of Mirrors

• In nearly all cases, the CAPITALS in PRINT statements should, unless text, be entered in GRAPHICS mode. In Patience these are indicated by an underline.



Room by A.G. Bird

Your job as a Post Office employee is to direct the mail in the sorting room.

Due to wear and tear on the conveyor belt, however, sorting mail does tend to get harder and harder. But as a trusted employee you must do your best.

How it works

15 keyboard BEEP

20-60 initialise

100-170 start game, part of conveyor chopped

180-240 draw scene

250-280 name and address on letter

290-300 letter slide

400-580 main loop for letter's journey

700-710 subroutine for letter down slide

1000-1100 horizontal movement on conveyor 1

2000-2100 correct box check

2500-2520 end of game routine 8000-8010 instruction

9000-9040 graphics

Variables

as, bs first and fourth, second and third conveyor belts

b\$ city

x,y letter co-ordinates

a,b,c substring numbers sort number of letters

n main loop

m part of conveyor chopped

z belts two and three movement

h slide drop

s counter for slide drop

e correct location (score)

Patience by Tim Lang

This is a version of Patience which demonstrates the use of strings and arrays to set up a pack of cards, shuffle and deal and keep track of the play.

Note the use of the hash character to print into the lower portion of the screen instead of using INPUT which requires the ENTER key to be pressed after each entry.

How it works

100 instructions — expand or leave out

1000 DIMenson arrays and call subroutine at 1560 to set user-defined graphics

1010 shuffle and deal cards

1150 main loop

1180 detect last card

1370 detect a wrong entry and loop back

1410 subroutine to change J,Q etc. into numbers

1460 calculate score and offer new game.

Listing for Hall of Mirrors

```
Hall of Mirrors
  10 REM
           by David Nowotnik
  20 REM
               Feb. 1984
  30 REM
  40 REM
  50 REM
           Initialise
  60 REM
 100 CLEAR 30000
 110 FOR i=31000 TO 31011
 120 READ a: POKE i,a
 130 NEXT i
 140 DATA 33,0,61,17,0,124,1,0,3,237,176,201
 150 LET zq=USR 31000
 160 POKE 23607,123
 170 LET a=.5: LET x=32496
 180 FOR i=0 TO 7
 190 LET a=a*2: LET b=128/a
 200 POKE x+i,a: POKE x+i+8,b
 210 NEXT i
 220 LET m$=CHR$ 126
 230 LET n$=CHR$ 127
 240 FOR i=30002 TO 30025
 250 READ a: POKE i,a: NEXT i
 260 DATA 33,0,88,17,148,117,1
 270 DATA 0,3,237,176,201
 280 DATA 33,148,117,17,0,88,1
 290 DATA 0,3,237,176,201
 500 REM Score
 510 LET score=0: LET round=1
1000 REM
         Set up the board
1010 PAPER 7: INK 0: BORDER 7: CLS
1020 PRINT TAB 8; "HALL OF MIRRORS", " Round "; round," Score "; score
1030 PRINT AT 4,4;: FOR i=1 TO 12: PRINT INK 1; m$; INK 2; n$;: NEXT i
1040 FOR i=5 TO 18 STEP 2
1050 PRINT AT i,4; INK 2; n$; AT i+1,4; INK 1; m$
1060 PRINT AT i,27; INK 1; m$; AT i+1,27; INK 2; n$
1070 NEXT i
1080 PRINT TAB 4:: FOR i=1 TO 12: PRINT INK 2:n$; INK 1;m$;: NEXT i
1090 PRINT AT 4,12;"
1100 BRIGHT 1
1110 FOR i=5 TO 18STEP 2
1120 FOR j=5 TO 26 STEP 2
1130 PRINT AT i,j;" ";AT i+1,j+1;" "
1140 NEXT j: NEXT i
1150 BRIGHT 0
1160 PRINT
1170 PRINT TAB 5; "ABCBEFGHIJKLMNOPQRSTUV"
1180 PRINT AT 3,12;
1190 FOR j=1 TO 4: PRINT PAPER j; " "; NEXT j
1200 FOR j=4 TO 1 STEP -1: PRINT PAPER j; " "; NEXT j
1210 PRINT AT 2,12; "12344321"
1220 FOR j=5 TO 18
1230 PRINT AT j,28; CHR$ (j+60)
1240 NEXT j
1250 PRINT AT 16,3; FLASH 1;">"
1260 PRINT AT 5,11; INK 1; CHR$ 126; AT 5,20; INK 2; CHR$ 127; AT 8,15; INK 2; CHR$ 1
27: INK 1: CHR$ 126
1270 PRINT AT 10,14; INK 2; CHR$ 127; AT 10,17; INK 1; CHR$ 126
1280 PRINT AT 12,13; INK 1; CHR$ 126; AT 12,18; INK 2; CHR$ 127
1290 FOR i=1 TO 12
1300 LET x=5+INT (RND*7)
1310 LET y=11+INT (RND*10)
1320 IF SCREEN$ (x,y)<>" " THEN GO TO 1300
1330 LET a=INT (RND+1.5): PRINT AT x,y; INK a; CHR$ (25+a)
1340 NEXT i
1500 REM
           Main Routine
```

PROGRAMS

```
1510 FOR i=1 TO 5
1520 INPUT AT 0,0; ("Mirror ";i;". Enter horizontal coordinates (A to V) ")
: LINE, h$
1540 IF LEN h$<>1 THEN GO TO 1520
1550 LET h=CODE h$: IF h>90 THEN LET h=h-32
1560 IF h<65 OR h>86 THEN GO TO 1520
1570 LET h=h-60
1580 POKE 23168+h,184
1590 INPUT AT 0,0; ("Mirror ";i;". Enter vertical coordinates (A to N) ");
 LINE V$
1610 IF LEN v$<>1 THEN GO TO 1590
1620 LET v=CODE v$: IF v>90 THEN LET v=v-32
1630 IF V<65 OR V>78 THEN GO TO 1590
1640 LET V=V-60
1650 POKE 22556+v*32,184
1660 LET att=ATTR (v,h)
1670 IF SCREEN$ (v,h)=CHR$ 32 THEN GO TO 1720
1680 PRINT #1: "This square is already occupied"
1690 PAUSE 200
1700 POKE 23168+h,56: POKE 22556+v*32,56
1710 GO TO 1520
1720 PRINT AT v,h; FLASH 1; " "
1730 PRINT AT 21,0; "Mirror "; i; ". Enter mirror
1740 INPUT (" type ("; CHR$ 126;" =1, "; CHR$ 127;" =2) "); LINE c$
1750 IF LEN c$<>1 THEN GO TO 1740
1760 LET c=CODE c$-48: IF c<1 OR c>2 THEN GO TO 1740
1770 PRINT AT 21,0;"
1780 PRINT AT V,h; INK c; CHR$ (c+125)
1790 POKE 23168+h,56: POKE 22556+v*32,56
1800 IF i <5 THEN INPUT "Any more mirrors (y/n) "; LINE c$: IF c$="n" OR c$="N"
THEN GO TO 1815
1810 NEXT i
1815 LET zq=USR 30002
1820 BEE 1,1: LET h=5: LET v=16: INK 1
1830 LET y=43: LET x1=1: LET y1=0
1840 FOR i=35 TO 39
1850 PLOT i,y: NEXT i: LET x=i
1860 IF INKEY$="S" THEN PAUSE 200: GO TO 1000
1870 LET zq=USR 30014: LET att=ATTR (v,h): IF att=56 OR att=120 THEN GO TO 1900
1880 IF att=57 OR att=58 THEN GO TO 1950
1890 GO TO 3000
1900 PRINT AT v.h; BRIGHT (att=120);" "
1910 LET n=8: GO SUB 5000: LET h=h+x1: LET v=v-y1
1920 GO TO 1860
1950 INK att-56: LET n=4: GO SUB 5000
1960 LET a=x1: LET x1=y1: LET y1=a
1970 IF att=58 THEN LET x1=-x1: LET y1=-y1
1980 GO SUB 5000: POKE 22528+h+32*v,att
1990 LET h=h+x1: LET v=v-y1: GO TO 1860
3000 REM Increment score
3010 LET score=score+att/8
3020 PRINT #1;" Your score in round "; round; " was "; att/8
3040 PAUSE 400
3050 IF round<5 THEN LET round=round+1: GO TO 1000
3060 CLS: PRINT AT 5,5; "Your total was "; score; " points."
4990 STOP
5000 FOR i=1 TO n
5010 PLOT x,y
5020 LET x=x+x1: LET y=y+y1
5030 NEXT i
5040 RETURN
```

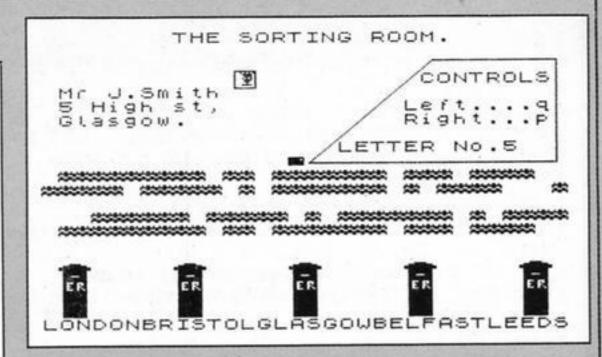
SPECTRUM PROGRAMS

Listing for The Sorting Room

```
By A.G. Bird. 1984
   I REM THE SORTING OFFICE
  18 GO SUB 9888: GO SUB 8888:
  15 POKE 23609,100
  28 LET c=0: DIM a#(64): DIM 6#(64)
  35 LET b#*"АААААА АЛАЛЛАА АЛАЛЛАА АЛАЛЛАА АЛАЛЛАА АЛАЛЛАА АЛАЛЛАА ПООЛОВАН
  40 BORDER 0: PAPER 0: CLS : PRINT AT 0.0; PAPER 6: IN 0:"
By A.G.Bird.

50 INK 2: BRIGHT 1: FOR f=0 TO 30 STEP 3: PRINT AT 2.f: DE": BEEP .01.f: PRINT AT 3.f: "FG": BEEP .01.f: PRINT AT 4.f: "HI": BEEP .01.f+20: PRINT AT 5.f: "HI"
1 BEEP . 01, f+30: NEXT f
 60 INPUT " HOW MANY LETTERS DO YOU TO SORT ? "Isoet
   TO SORT 7
  99 REM Start of game
                                                               Main Loop
 100 FOR n=1 TO sort
 110 LET he@: LET sed: LET x=9: LET y=15: LET a=1: LET b=1: LET d=1
 128 IF RND).5 THEN GO TO 188
 138 LET m=INT (RND+32)+1
 140 IF m=15 THEN GO TO 130
160 LET a#(m)=" ": LET a#(m+32)=" "
170 LET b#(m)=" ": LET b#(m+32)=" "
 188 BORDER 8: PAPER 8: INK 2: BRIGHT 1: CLS
 190 PRINT AT 8.8: INK 8: PAPER 6:" THE SORTING ROOM.
288 FOR f=1 TO 29 STEP 7: PRINT AT 17.f:"DE":AT 18.f:"FG":AT 19.f:"HI":AT 28.f:
                                                             THE SORTING ROOM.
 "HI": NEXT 4
 210 INK 8: BRIGHT 0: PRINT AT 21.0; PAPER 6: "LONDON"; AT 21.13: "GLASSOW"; AT 21.2
71"LEEDS":AT 21.61 PAPER 51"BRISTOL":AT 21.281"BELFAST"
228 FOR 4=2 TO 8: PRINT AT 4.8: PAPER 7: BRIGHT 8:"
 238 PRINT AT 3,12; INK 5; PAPER 7; BRIGHT 1; "C"
248 PLOT 94,142; DRAW 8,18; DRAW 18,8; DRAW 8,-18; DRAW -18,8
258 PAPER 7; INK 8; GO SUB INT (RND+7)+5881
 260 GO SUB INT (RND+7)+5101
 270 GO SUB INT (RND+5)+5201
 288 PRINT AT 6,1;t#
 280 PRINT AT 6,1;t#
290 INK 5: PLOT 130,98: DRAW 60,60: DRAW 60,8: DRAW 8,-68: DRAW -128,8
380 PRINT AT 3,23: INK 6: PAPER 0: "CONTROLS":AT 5,22: "Left....q":AT 6,22: "Right
..p":AT 8,18: "LETTER No.":n
410 LET a*a+(INKEY#="q")-(INKEY#="p")
420 IF a*B THEN LET a*32
470 IF a*B THEN LET a*1
 430 IF a=33 THEN LET a=1
440 IF b=33 THEN LET b=1
 450 IF d=0 THEN LET d=32
 460 PAPER 0: INC 3: PRINT AT 10.0:as(a TO a+31):AT 14.0:as(a TO a+31)
470 INC 4: PRINT AT 11.0:bs(b TO b+31):AT 13.0:bs(d TO d+31)
  488 IF s=8 THEN GO SUB 700
 498 PRINT AT x,y1" "
 500 IF SCREEN$ (x+1.y)=" " THEN LET x=x+1
 518 PRINT AT X, YI INK 7; BRIGHT 1:"B"
  528 IF H=18 THEN GO SUB 1888
 530 IF x=11 THEN LET y=y=2: IF y<0 THEN LET y=31
540 IF x=13 THEN LET y=y+2: IF y>31 THEN LET y=0
550 IF x=16 THEN GO TO 2000
  560 LET z=INT (RND+2)
 578 LET b=b+z: LET d=d-z
  580 GO TO 400
699 REM Letter Slide
700 FOR #=31 TO 23 STEP -1: PRINT AT 1,f; INK 7; BRIGHT 1; B"; BEEP .81,f*2; PR
INT AT 1,f; ": NEXT f
710 FOR f=23 TO 15 STEP -1: PRINT AT 1+h,f; INK 7; B"; BEEP .81,f*2; PRINT AT 1
 +h.f1" "1 LET h=h+11 NEXT f
 720 LET s=1: RETURN
999 REM Letter movement Belt 1
1000 LET y=y+(IN(EY#="p")-(IN(EY#="q")
1010 IF y>31 THEN LET y=0
1020 IF y<0 THEN LET y=31
1030 IF SCREEN$ (x,y-1)=" " THEN LET y=y-1
1040 IF SCREEN$ (x,y+1)=" " THEN LET y=y+1
1050 RETURN
```

```
1999 REM Correct Box check
2000 IF y=1 AND ts="London." DR y=2 AND ts="London." THEN LET c=c+1
2010 IF y=8 AND ts="Bristol." DR y=9 AND ts="Bristol." THEN LET c=c+1
2020 IF y=15 AND ts="Glasgow." DR y=16 AND ts="Glasgow." THEN LET c=c+1
2030 IF y=22 AND ts="Belfast." DR y=23 AND ts="Belfast." THEN LET c=c+1
2040 IF y=29 AND ts="Leeds." DR y=30 AND ts="Leeds." THEN LET c=c+1
2060 PRINT AT x,y; "1 BEEP .01,50: PAUSE 25
1999 REM Correct Box check
 2100 CLS I NEXT n
 2499 REM End of Game routine
 2500 FOR f=60 TO -50 STEP -5: BEEP .01.f: BEEP .01.f+2: BEEP .01.f+4: NEXT f
 2510 BORDER 0: PAPER 0: INK 5: CLS : PRINT AT 8,3; "YOU HAVE CORRECTLY SORTED"; AT
  18,6101" OF THE ISOTTI" LETTERS."
 2520 PRINT AT 21,8;" PRESS ANY KEY FOR ANOTHER GO. ": PAUSE 0: GO TO 20
 5000 REM Name
 5001 PRINT AT 4,1; "Mr J. Smith": RETURN
 5002 PRINT AT 4.1; "Mr Collins": RETURN
 5003 PRINT AT 4,1; "Mrs Jones": RETURN
 5004 PRINT AT 4,11"Dr Peters": RETURN
5005 PRINT AT 4,11"E.A.Woods.": RETURN
5006 PRINT AT 4,11"B.S.Giles.": RETURN
 5007 PRINT AT 4,1; "Mrs Green": RETURN
 5100 REM Address
 5181 PRINT AT 5,1;"1 Church st.": RETURN
5102 PRINT AT 5.1; "27 Harp Ave.": RETURN
5103 PRINT AT 5.1; "King street.": RETURN
 5184 PRINT AT 5,1;"5 High st,"; RETURN
 5105 PRINT AT 5,1; "Oxford Road," | RETURN
 5186 PRINT AT 5,1; "B Hill Rise,": RETURN
 5107 PRINT AT 5,11"P.O.Box. 200.": RETURN
 5200 REH City
 5201 LET t#="London.": RETURN
 5202 LET t#="Glasgow.": RETURN
 5283 LET t#="Belfast.": RETURN
 5204 LET t#="Bristol.": RETURN
5205 LET t#="Leeds.": RETURN
BORDER 6: PAPER 6: INK 0: CLS': FRINT "You have just started work in a" "P ost Office sorting room. Your": "job is to direct the letters" "into the correct boxes at the ""end of the conveyer belt system." "A malfunction in the system." "means that you can only control" "the first and last belts and " "also belt wear means your job" "gradually gets harder."
 7999 REM Instructions
 8010 PRINT AT 21.8; INK 8; PAPER 5;" Press any key to start work. "I PRUSE 0:
 8999 REM Graphics
 9000 FOR g=65368 TO 65439; READ r: POKE g.r: NEXT o
 9818 DATA 8.8.98,255,153,182,255,153
 9828 DATA 8.8.255,253,255,255,255,8,85,62,38,42,38,28,8,62,7,63,255,255,63,63,63
  9838 DATA 224,252,255,255,252,252,252,68,63,63,63,49,55,51,55,49,252,252,252,148
   172,156,172,180
  9848 DATA 63,63,63,63,63,63,63,63,252,252,252,252,252,252,252,252,252
  9050 RETURN
```



Screen dump of The Sorting Room

Listing for Patience

```
I REM PATIENCE BY T J LAND
  48 PAUSE 8
58 INPUT "": IF INSEYEC>"1" AND INCEYEC>"1" THEN GO TO 140
 100 REM INSTRUCTIONS
 110 PRINT ""THE OBJECT OF THE GAME IS TO REMOVE THE BOTTOM CARD FROM EACHGU
LUMN AND PLACE IT ON THE UPTURNED PILE." "EACH CARD MOVED MUST BE ONE
LUMN AND PLACE IT ON THE
ABOVE OR ONE LESS THAN THE CARD CURRENTLY SHOWING"

120 PRINT ""IF A MOVE IS NOT POSSIBLE THEN PRESS SPACE TO DEAL ANDTHER CARDEND.
H THE REST OF THE PACKY "PRESS X TO END THE GAPE"
130 PRINT "PRESS ANY KEY TO START": PAUSE 0
1000 LET hi=52: GO SUB 1560: DIM AR(52,2): LET DR="SEMB": NEM GROWNICS "CIME"
1010 CLS : PRINT "PLEASE WAIT WHILE THE COMPUTER" "SHLEFLES AND DOALS THE CARDS
1828 LET c#="123456789TJUK": REM T is GRAPHICS "I"
1838 FOR n=1 TO 13: FOR e=0 TO 39 STEP 13
1040 LET a#(n+a,1)=c#(n)
1050 NEXT AT NEXT O
1868 FOR n=1 TO 131 FOR m=8 TO 3
1070 LET as(n+13*m,2)=bs(n+1)
1000 NEXT at NEXT a
1898 FOR n=1 TO 52; LET r=1NT (RNO+52+1); LET d#=af(n); LET af(n)=af(n) af(n)=af(n)
 n)=d#1 NEXT n
1100 CLS : FOR n=1 TO 7
1110 PRINT AT 1,0+4-210
1120 NEXT n
1130 FOR n=1 TO 35
1140 PRINT AT v(n) at(n):af(n): NEXT n
1150 REM MAIN LODP
1160 FOR p=36 TO 52
1178 LET c#=a#(p)
1180 IF po52 THEN PRINT AT 21.0; "THIS IS THE LAST CARD ": INVERGE 1; "E to CHE
1190 PRINT AT 17,1416#
1208 INPUT "": PRINT #1: INK 6: WHIL: CULUMN 7 ":: IF BL52 THEN FRIHT #1: I
NK 6: INVERSE 1: "SPACE to DEAL": PAUSE 8: INPUT ""
1210 IF p=52 THEN PAUSE 0: INFUT ""
 1220 IF CODE INKEY#=32 AND pCS2 THEN NEXT p
1230 IF INKEY#="x" OR INKEY#="X" THEN GO TO 1460
1240 IF CODE INKEY#>55 OR CODE INKEY#C49 THEN BEEP 1, 51 GO TO 1200
 1250 LET CHVAL INKEYS
 1260 GO SUB 1300
 1270 GO TO 1190
 1280 NEXT p
 1298 GO TO 1468
 1300 LET c=20+c
 1310 IF al(c.1)=" " THEN IF co7 THEN LET coc-71 GO TO 1310
  330 LET b=a-40: GO GUB 1410
 1340 LET d=b
 1350 LET a#CODE c#(1)
 1360 LET b=a-48: GO SUB 1410
 1378 IF d<>b+1 AND d<>b-1 THEN INPUT ="1 PRINT #1; INC 3; INVERSE 1; HOUSE COLO
 MN****TRY AGAIN'": BEEP 1,10: BEEP 1.0: BG TO 1200
 1380 LET c#=af(c): LET af(c)="
 1398 PRINT AT y(c), x(c);"
 1400 RETURN
 1410 IF a=163 THEN LET b=10
 1420 IF a=74 THEN LET b=11
1430 IF a=81 THEN LET b=12
 1448 IF a=75 THEN LET b=13
 1450 RETURN
 1460 LET q=0: FOR n=1 TO 35: IF at(n,1)<>" " THEN LET q=q+1: NEXT p
 1470 NEXT n
 1488 PRINT AT 21.81" ": TAB 8
 1498 PRINT AT 17,8:TAB Big:" CARDS LEFT":TAB 8
 1500 IF QChi THEN LET himg: PRINT AT 19,01TAB BITA NEW HIGH SCORET FOR NOTE TO
  25: BEEP .1.n: NEXT n: GO TO 1520
 1518 PRINT AT 19,8: TAB B: "HI-SCORE = "thi
 1528 PRINT WI: INK 5; DO YOU WANT ANOTHER GARE 7 (Y/N)
 1530 PAUSE 0
 1540 IF INKEY#*"Y" OR INKEY#*"V" THEN 60 TO 1010
 1550 CLS : STOP
 1560 REM INITIALISE
 1570 BEEP .2,25: BEEF .2,20
  1588 DIM x (35): DIM y (35)
 1592 FOR n=1 TO 5: FOR a=1 TO J
 1600 LET x (7*(n-1)*n)=4*n-2
1610 LET y (7*(n-1)*n)=2+2*n
  1620 NEXT a
  1638 NEXT n
 1648 RESTORE 1 FOR n=8 TO 7
  1658 READ HI PORE USR "d"+n.w
 1660 READ WE POKE USR "C"+n.w
  1678 READ W: POKE USR "h"+n.W
  1688 READ HI PORT USE "S"+D.H
  1670 READ WI POKE USB "t"+n, w
  1700 NEXT 0
  1718 DATA U.S.34.8.0.28.26.119.28.95
 1720 DATA 62,42,127,62,81,127,127,127,127,01 1730 DATA 62,42,62,127,81,78,8,28,42,81
  1748 DATA 8,8,8,8,95,0,8,8,8,8
  1758 RETURN
  9998 SAVE "PATTENCE" LINE I
```



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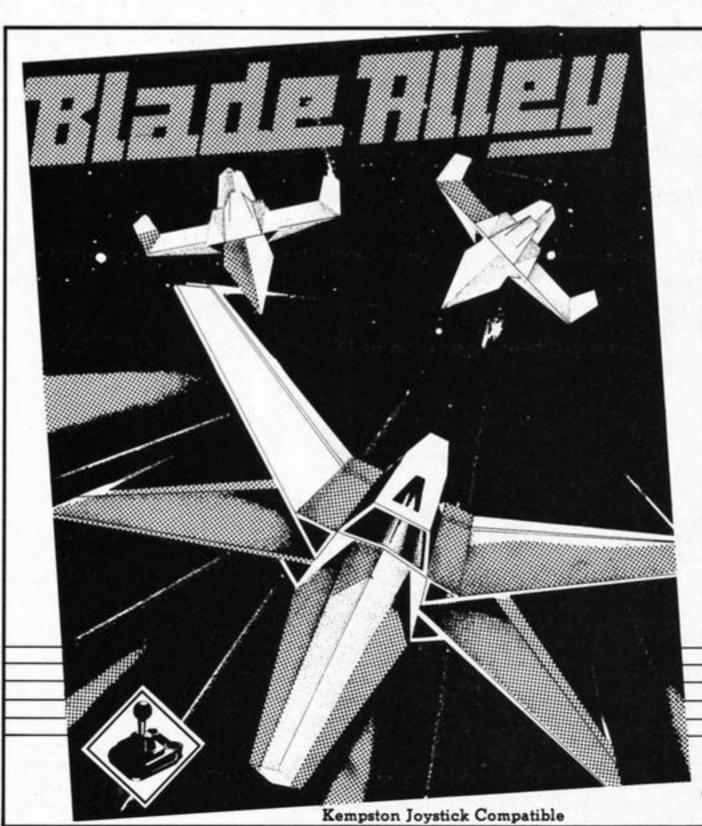
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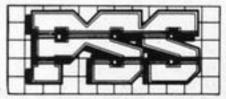


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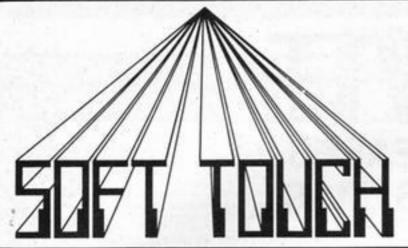
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Mosaic, 187 Upper St, London N1 1RQ

Almost an exact replica of the Puffin book, written by John Astrop, with the same title. It is a database enabling the user to store secret information. With two secret codes to crack no one can sneak a look at your own file.

After the program has LOADed you are asked if you wish to LOAD previously saved data. If you do you can LOAD it, update, and then reSAVE it. It's that simple. On the other hand if you want to start a new file, before you have filled the previous one, about 400 or 500

entries have to be made. The file doesn't have to be filled before it can be SAVEd, though. There are fifty pages to choose from, including My Vital Statistics, and Pocket Money which shows to whom it is aimed.

The complete package includes book, cassette and full instructions. I loved being secretive when I was a child, and if you do, or indeed your child does, then I think this program would get a lot of use in your household.

M.B.

instructions	90%
ease of use	80%
display	70%
value for money	80%

* * * *

Killer Watt CBM 64 £7.95

Alligata, 178 West St, Sheffield S1 4ET

After a disappointing start, software available for the 64 has improved beyond all expectations. This program demonstrates the high quality becoming standard from some.

You control a spaceship and must explore a series of caves — inhabited by bizarre species — destroying light bulbs as you go. The maze is complex and, combined with the nasties, tests your reactions and delicacy of touch.

Graphically the game is of a high standard with caves scrolling from side to side. Single pixel scroll is nicely implemented and movement is extremely smooth. Sprites design is good — I found the mechanical ducks particularly attractive. And sound is nice, the theme being Tocata and Fugue... well, nearly.

There are five skill levels and you can choose the number of protective shields on the spaceship.

A game of the highest quality which offers excellent value for money and is guaranteed to keep you twitching over the keyboard for many hours. Nice one, Alligata.

A.W.

instructions	80%
playability	95%
graphics	95%
value for money	100%



BC BASIC CBM 64 E57

Kuma, 12 Horseshoe Pk, Horseshoe Rd, Pangbourne, Berks

BASIC 2 is adequate, but the CBM 64 offers no support for the superb graphics and sound and there are no commands for "structured" BASIC. BC BASIC, first on cassette and now in cartridge, attempts to cure this.

It offers a mind-boggling range of commands — I have no intention of describing each. The quality is variable. Commands for sound, sprites and structured BASIC are notable, high resolution commands effective if not over-complex. The "machine code" aids are a joke. Apart from block save and DEEK and DOKE, they are of limited use. A machine code monitor would have been a better option.

Overall, the package functioned well, although I noticed the system had been somehow tweaked. A warm reset (SYS 64738) wouldn't work and my own monitor could not be used with the cassette in place (and it lives at \$1000!)

An improvement on Simon's BASIC, but also ill thought-out. The author appears to have tried to cram in as much as possible rather than keep a balance. A good product, if you use BASIC only, but too highly priced.

instructions ease of use graphics value for money

ruse 750 cs N/2 600 600



Useful... and fun

Reviews of utilities — and a couple of programs for amusement. Our team tells you if they're worth the money

Bei Graph 32K BBC £14.89

Bel Tech, Stanmore Industrial Estate, Bridgenorth WV15 5HP

A flexible graph drawing program meant for serious educational or business uses. There are many options including line graphs, barcharts, histograms, pie charts besides fairly comprehensive function plotting routines. The program can accept and store up to four sets of data of which one can be time related and plotted accordingly.

The data can be entered from the keyboard, from a previously stored file or even generated by the function you specify. This gives you a great range of options which are very valuable. Each set of data can have up to

52 values. The ability to label each set of data is useful. There is also an Epson screen dump, on the disc version at least, which produces very pleasant results. There are some problems however. One causes the data to be badly formatted, overlapping in places, and the other prevented me from plotting a line graph at all — giving an error message every time. I haven't yet had time to send in the user registration and give them my problems. Disc version £16.45.

instructions 70% ease of use 85% graphics 90% value for money 60%



Microtext 48K Oric/ Atmos £15

Microplot, 19 The Earls Croit, Cheylesmore, Coventry CV3 5ES

Microtext is described as an easy to use text and data processing package. It never actually says it is a wordprocessor or a database. I'm not surprised...

When LOADed, the first thing that happened was "UDEF'D STATEMENT ERROR AT 20". A GOSUB statement to a non-existent line. I had to LOAD the program at slow speed. I typed in a few sentences to realise that it was in overwrite mode so I went into insert mode — which all decent wordprocessors default to — and tried to type again.

Being mostly in BASIC, if you try to insert a letter at the beginning, you have to wait a couple of seconds for the program to adjust all the letters. That's just for one letter and, just to put you off, it pings every time! I then tried replace and search. Up came a Syntax Error. I typed CTRL-D by mistake. Syntax Error. On many occasions, I lost a whole text for no apparent reason. Hmmmm...

There is a distinct lack of serious software for the Oric but I'm surprised any software house has the nerve to market a program of this quality. Avoid like the plague.

S.S.

instructions 50% ease of use 10% display 10% value for money 0%

Jh.



Picture Book Oric £4.95

Softbacks, PO Box 257, Watford WD1 3LQ

Very young children can build up pictures by typing in the names of familiar objects and seeing them appear "by magic". From the child's point of view, Picture Book is an exciting new way of making pictures rather than a spelling practice. This is important as it puts skills of writing and spelling on the right perspective. Or at least, that's idea behind this program.

Technically, this program is very good compared with other educational, usually written by teachers who know the subject but do not know how to program. Oric graphics are used well and it is well fool-proofed. There is facility to SAVE and LOAD pictures created using this program.

I do agree that writing and spelling are simple means of enabling the child to do something he or she wants, as the inlay card says. But whether a child who is still learning to spell words such as "TOY" is capable of LOADing this program and using the QWERTY keyboard is another matter.

S.S.

instructions	100%
ease of use	90%
display	90%
value for money	90%

Reading Aid 2 48K Spectrum £17.19

James Nisbet & Co. Digwell Pl, Welwyn, Herts

This second in the series of features of introductory SCREEN\$ with identical, and equaly abysmal, screen presentation.

Because you can read, you probably aren't aware how complex it is. If your child has problems, it can be frustating to try to help because you don't understand why they can't do it properly. This may help by outlining some clues we use when reading.

Although we were taught to "sound the letters" we don't now because we use clues to read quickly. Many children find this a difficult process and this series will help diagnose which clues are causing problems. Some clues are others are not.

No, it's not a mistake, just an exmple of the "cloze" technique used. Can you supply the missing word. As in Aid 1, the child types a response and, if correct, it floats into position. No fuss is made of incorrect responses. They are recorded to be printed out by an adult.

Among the items dealt with: word forms, rhyme clues, anticipation, similar consonant blends and endngs. Sadly, price and unimaginative presentation make this less than a best buy. D.M.

instructions	100%
ease of use	80%
display	10%
value for money	35%



Computer Studies 48K Spectrum £8.95

Scisoft, 5 Minster Gdns, Newthorpe, Eastwood, Notts

A well packaged, impressively documented suite of programs designed for students of 13-plus and aimed at O-level and CSE computer studies.

It features flowcharts, CESIL (an introduction to machine language), logic gates, truth tables, Karnaugh maps, bases and a logic processor. Each is graphically illustrated and accompanied by enough BEEPs to drive you mad if your Spectrum is amplified!

None of the programs can actually teach its subject, though the manual helps. It will, however, show up areas in which you are weak and give pointers. In effect you are asked to respond to prompts and the computer will draw the flowchart, print the truth table, calculate the number in base 96 or show the logic system you've designed.

Perhaps the most valuable feature is the built-in revision advice which considers how long you have until your exam and tailors suitable revision for you. Add to that a built-in mock exam, complete with grade estimator, and you have a really first class Dutch uncle.

A useful package, but some sections are difficult to load and there is still some poor error trapping of user input.

D.M.

instructions 90% lease of use 80% display 95% value for money 90%



What will they learn from these?

Your computer as a teacher.
Our experts explain how these five measured up

Story Book Oric £4.95

Softbacks, PO Box 257, Watford WD1 3LO

The inlay card describes this as a challenging game that develops reading skills.

When the program is run it displays various options. If the child chooses option 1 — recreate story — at this point, a story will be displayed except that all the letters are replaced by underscore characters. The child must guess the words to the story. If he/she gets totally stuck, the word can be revealed by pressing "?". When the whole story has been guessed and the help facility has not been over-used, a tune will be played in three-part harmony! The

program has facilities to create stories and SAVE for later use. Obviously, the parent can type in a proverb or a story and SAVE it on cassette.

Technically, this program is well written, fool-proofed and has many useful options. If a story is long, the only clue is the punctuation and the game becomes rather like a wild guessing game. But it is fun to play and a child could learn a proverb or two.

It's better than a lot of the supposedly educational software available for the Oric today. S.S.

instructions	100%
ease of use	80%
display	80%
value for money	75%



Reading Aid 1 49K Spectrum £17.19

James Nisbet & Co, Digswell Pl, Welwyn, Herts

Designed to identify specific reading problems — reversing letters and substituting one word for another — this sombre-looking double tape package of eight programs seems to be aimed at teachers rather than parents.

Comprehensive notes for the "teacher/supervisor" detail the sentences used and the options, including the facility to print and analyse the user's problem. Brief mention is made of the need to talk to the user about the responses.

Basically, sentences are shown with gaps and the child types in one of the two options. Input is fully error-trapped and, if the word is correct, it wends its way into the gap with BEEPs. An incorrect response falls through and the user is expected to try

I'm not a great believer in dressing up all educational programs as space games, but I do feel attractive screens are important. This is about as attractive as a tax return and, for parents, of questionable use. There's not much point in diagnosing what a problem is if you don't know how to cure it. The programs won't do that and, at this price, a school would have to be well-off to consider it.

D.M.

instructions	100%
ease of use	80%
display	10%
value for money	40%



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* ZX81 Chart

Home Computing Weekly 1.8.83 and 1/11/83.

Comments about the game from press and our customers. "FOOTBALL MANAGER is the best game I have yet seen on the Spectrum and my personal favourite of all the games on any micro... To the ordinary person it is an excellent view of what can be done in the field of computer games... The crowning glory of this game is the short set pieces of match highlights which show little stick men running ground a pitch, shooting, defending and scoring. ... It is a compulsive game but people who cannot take game sessions of 9 hours or so, which happened on one happy Sunday, will be grateful to know that there is a 'save to tape' option. FOOTBALL MANAGER has everything it could ... The originator, Addictive Games, certainly deserve the name." Rating: 19:20 (Practical Computing – August 1983).

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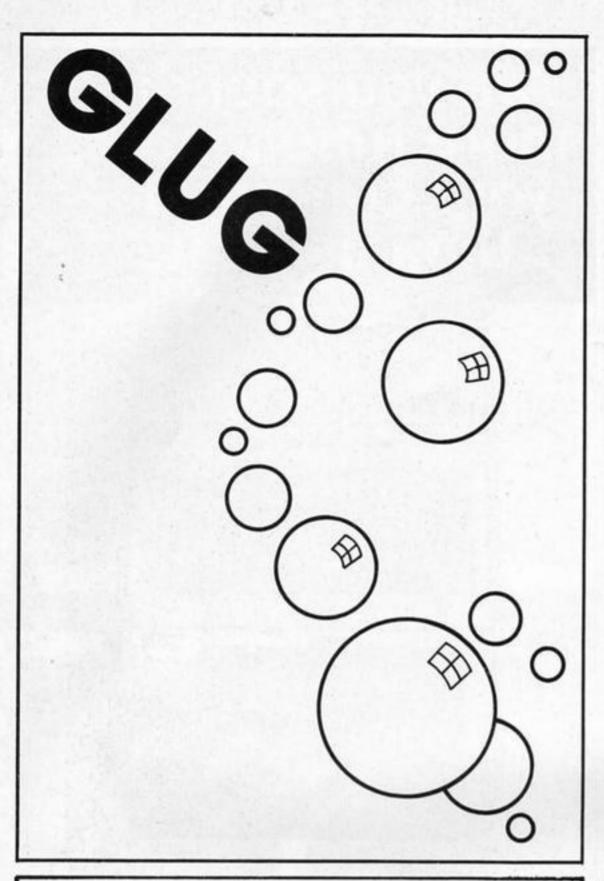
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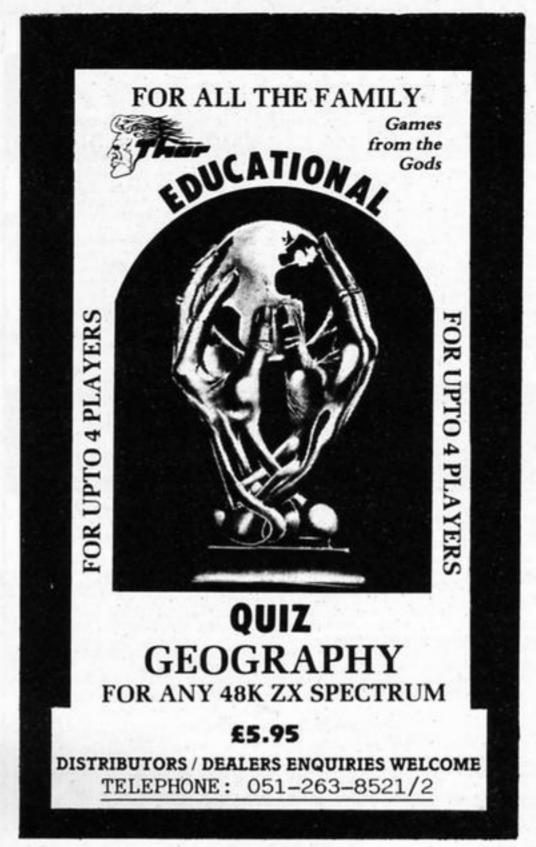
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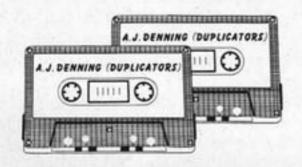
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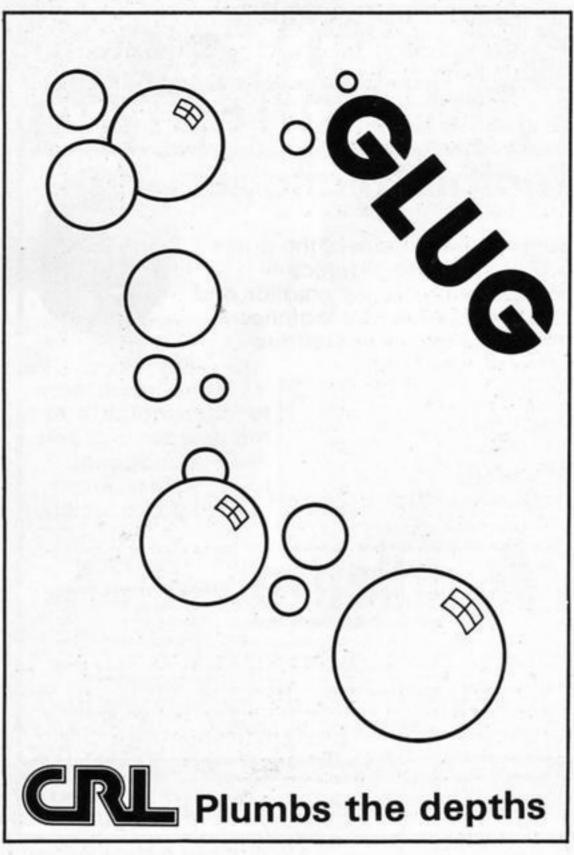
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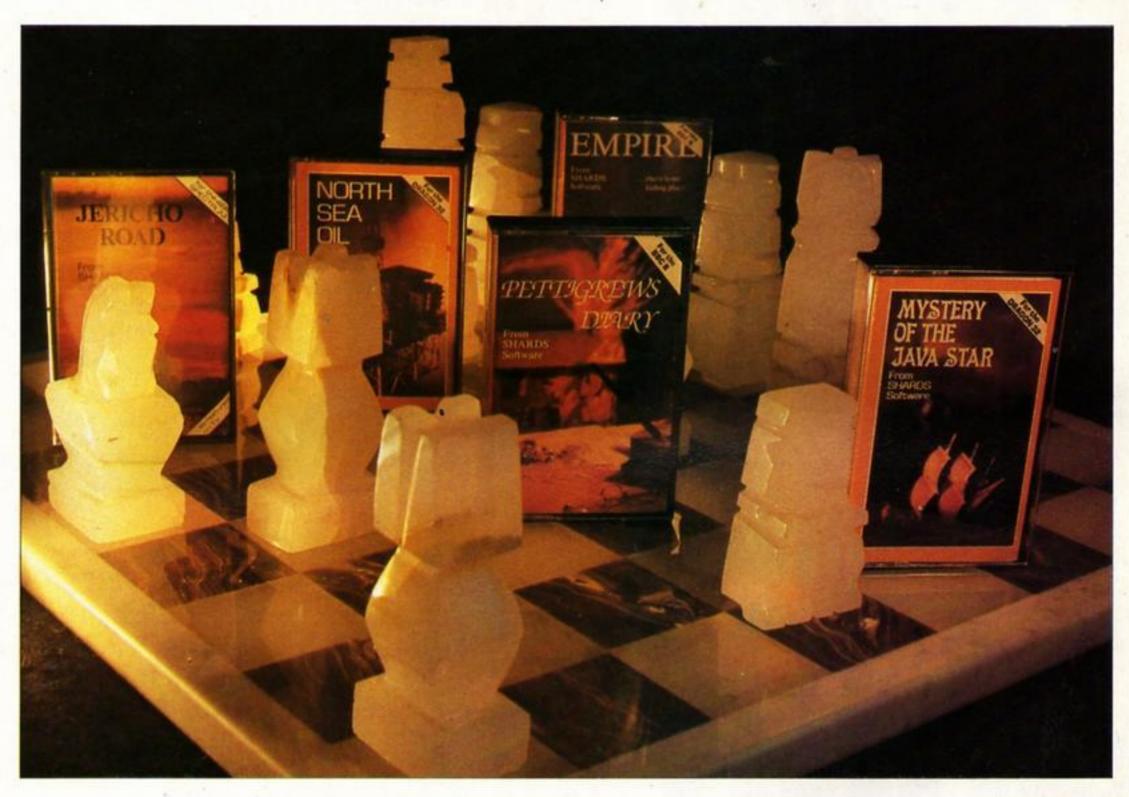
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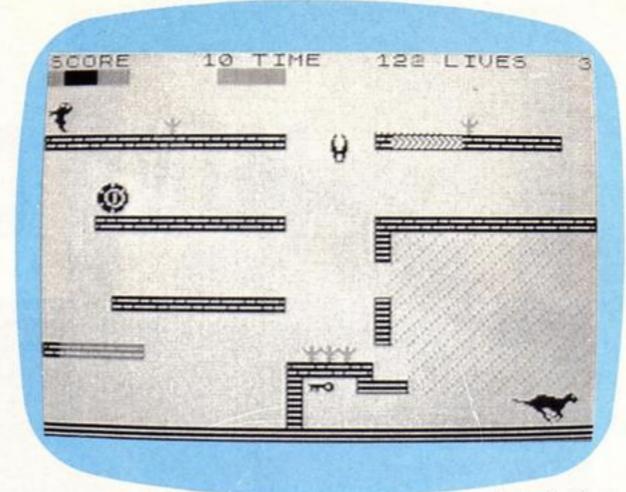
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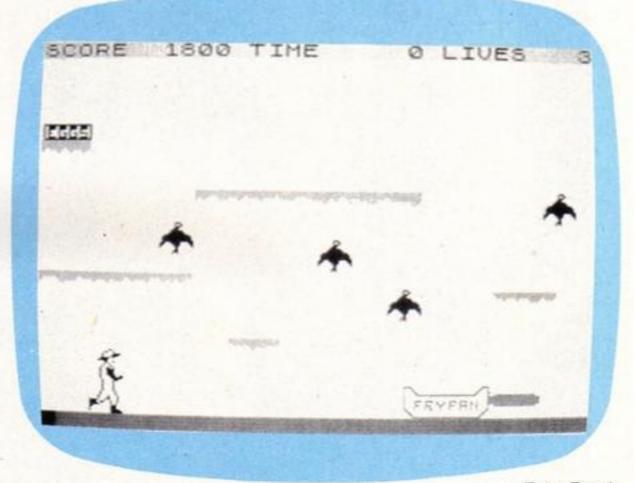
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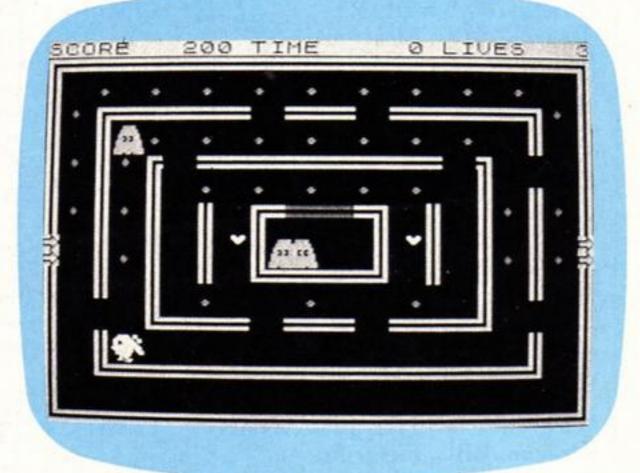
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All versions of "The Hobbit" are identical with regard to the adventure program. Due to memory limitations, BBC cassette version does not include graphics.

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Guttong Gotton Sord M5 £23.95

Computer Games, Goldings Hill, Loughton, Essex IG10 2RR

You play the part of a railroad builder. First you have to lay tracks to the station and then drive the train through the

The screen is divided into 24 blocks, one of which is empty, exactly like sliding block puzzles, popular some years back. Each block has a track on it and you have to move them so that the train, which is moving continuously, won't go into a dead end. It's no good simply keeping the train running as you have to collect all the passengers at the stations, located at the

edge of the screen, to go on to the next screen. There are enemy trains which try to crash into you but, but by manipulating the tracks, you can make them crash into each other.

The graphics are very nice and sounds very impressive. The game has some jolly tunes and the overall presentation is excellent. If you want a mind stimulating game which also has the addictive quality of a real time arcade game, buy this. It is great fun to play and is refreshingly different.

instructions	90%
playability	90%
graphics	90%
value for money	90%



Step Up Sord M5 £23.95

Computer Games, Goldings Hill, Loughton, Essex IG10 2RR

The instructions explain that you have to climb 10 flights of stairs, jump over the obstacles or evade them with your barrier, get to the top and escape with the friendly UFO before your energy runs out. You control a cute little figure and make him climb stairs. With a quick push on the left edge of the attack button, you can make him jump, or the right edge to make him invincible for a few seconds.

Even on the first screen, there is a huge number of nasties, including spiders, mice, spider's webs and monsters wandering around and, at first, it can be

frustrating as you lose your three lives in a matter of seconds. But if you persevere, you will eventually get to the top to get rescued by the UFO, then there's the next screen where there's even more spiders, mice, monsters...

The characters are well defined and animation is good. However, the sprite feature is not used to its fullest. In fact, some characters aren't even sprites, but hardened arcade players could do worse than buying this highly original game.

80%
70%
70%
80%



Backgammon TI-99/4A £7

Not Polyoptics, from Stainless, 10 Alstone Rd, Stockport,

This opportunity to challenge the TI was greeted enthusiastically by our household, but we were soon to be disappointed.

The program contains options to either play against the computer or another player. During the first attempt at the one player game, while the computer was considering its second move, the program crashed with a Bad Value in 2010.

The second game I managed to win, but at its end the board disappeared and I was informed my score was now one, meaning I had won one game. Scoring in the original game is done on a points system, the most being awarded for a backgammon. Omitting this seems very strange, particularly as the program includes an option to double.

On my third attempt everything was just going well when the display partially scrolled off the screen and the program locked. This couldn't be cleared, so I had to quit and re-load.

Fortunately, several subsequent games passed uneventfully, but the computer proved to be a fairly pedestrian and not altogether intelligent opponent. In view of the limited memory available, the program overall seems reasonable, but has little to offer an experienced player. Needs Extended BASIC.

J.W.

60%

50%

80%

50%

instructions playability graphics value for money

For the fun of it...

Build a railway, play backgammon... two games in this collection tested by our review panel

Shakey/ **Barrier Attack** Sord M5 £8.95

Computer Games, Goldings Hill, Loughton, Essex IG10 2RR

snake that feeds on frogs whilst avoiding rocks and the electrified restricts his own movement. The snake is very colourful, movement is fast and key response is good. In the tiny package, second game could memory of the standard M5, it even has a joypad option and difficulty levels.

The second game is rather playability disappointing in comparison, graphics The blurb says that in the year value for money 4501, the uneasy cosmic peace is about to be shattered by barbarians, the uncouth warriors

of the dreaded Oasys Squadron. You, as the commander of the 17th zone Defence Battalion, must prevent them from destroying your ship and overrunning your section of the galaxy, and so on. Sounds incredibly exciting doesn't it? Snakey is a typical snake game Well, it's a simple vertical where you control a hungry scrolling game. Your ship at the top of the screen can be moved left and right. By pressing 1 or fence. Also, as Snakey grows he the attack button, you can clear a path. Graphics are simple and sound is boring.

To conclude, not a bad have been better. S.S.

instructions 95% 60% 60% 70%



Quasimodo/ **Q** Bono TI-99/4A £8

Stainless, 10 Alstone Rd, Stockport, Cheshire

Here's two Extended BASIC games for the high scorers among us. Each is loaded separately. Quasimodo requires the use of a joystick, but Q is for keyboard only.

In Quasimodo you have five lives with which to survive as many screens as you can ringing bells all the way! The purpose is to rescue damsels in distress. On each of several screens you run and jump along a brick wall. Hazards to avoid are combinations of arrows, cannonballs and holes in the wall. Points are scored for ringing a ben of rescuing a maiden.

Q Bono is a simple yet addictive game. Your man starts at the top of a pyramid of cubes. Using four arrow keys to control his diagonal movements he must travel across all the cubes which changes their colour to cyan. He is pursued by a snake which will take one of his lives if both land on the same cube together. After the first screen each cube must be visited twice. In subsequent screens this number increases. If you've a black and white TV, numbers can be shown on the cubes to indicate colour changes.

80% instructions playability 80% 75% graphics value for money 100%



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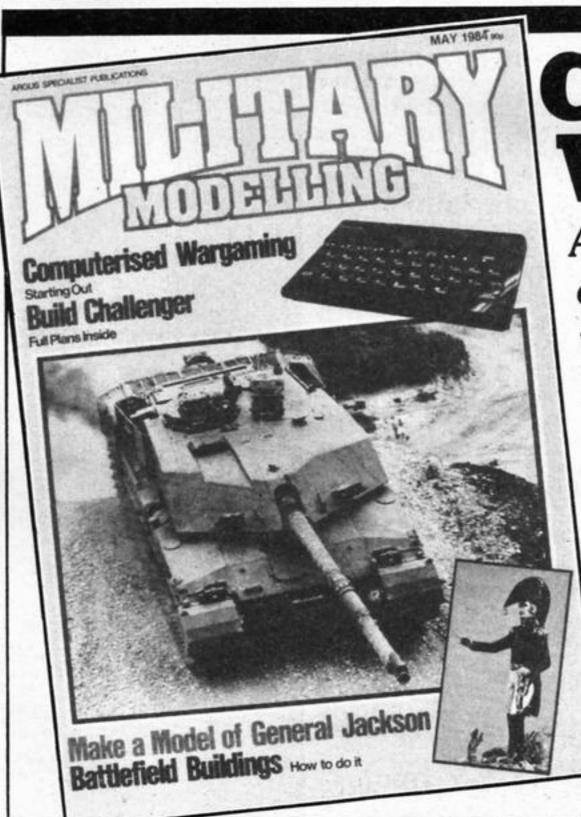
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Listing for Pyramid

```
1 REM
 2 REM
 3 REM
         **********
 4 REM
         **/P Y R A M I D\**
 5 REM
         ************
6 REM
 7 REM **************
 8 REM*
                S. ROGERS
 9 REM**************
 10 PAPERO: INK7: CLS
 20 PRINTCHR$ (20); CHR$ (17); CHR$ (6)
 27 RESTORE
 30 GOSUB 3000
 40 GOSUB 3540
 45 X=4:Y=25:MX=23:MY=8:B0=8000
 47 CLS
 50 PLOT20,2,"1k"
 60 PLOT19,3,"ljjk"
 70 PLOT18,4,"1 k"
 80 PLOT17,5,"1j %% jk"
 90 PLOT17,6,"lj jk"
 100 PLOT16,7,"ljj jjjjk"
 110 PLOT16,8,"1 jk"
 120 PLOT15,9,"1j
                      jjk"
 130 PLOT14,10,"ljjjjjj jjjk"
 140 PLOT13,11,"lj jjj
 150 PLOT12,12,"lj jjj
160 PLOT12,13,"lj j
                      jjj k"
 170 PLOT11,14,"1jj j
                          jjj jk"
 180 PLOT11,15,"ljj ijjjjjj jjj k"
 190 PLOT10,16,"ljjj jjjjjj jk"
 200 PLOT10,17,"ljjjjjjjjjj jk"
210 PLOT9,18,"1jj
220 PLOT8,19,"1jj
                           ijj
                                   jk"
                               jji
230 PLOT7,20,"lj jjjjjjjjj jk"
240 PLOT6,21,"ljji jjjjjjjjjjjjk"
250 PLOT5,22,"ljjjjj j jjk"
260 PLOT4,23,"ljjjjjj ji j ik"
 270 PLOT0,24,"jjjjjjjjjjjj jjj
                                                 jk"
 280 PLOT26,25,"j
                         jj"
 300 PLOT27,0,"BONUS"
 305 PLOT27,1,"SCORE"
 310 PLOT27,2,"LIVES"
312 PLOT32,0,STR$(BO)
 315 PLOT32,1,STR$(SC)
 317 PLOT32,2,STR$(LI):K$=KEY$
 318 IF BO=0 THEN 1800 ELSE BO=BO-25
319 PLOTX, Y, " "
320 IFSCRN(X-1,Y)=105 THEN SC=SC+150:D=D-1:X=X-1:GOTO4
00
 330 IFK$=CHR$(8) AND SCRN(X-1,Y)<106 THEN X=X-1:GOTO40
340 IFSCRN(X+1,Y)=105 THEN SC=SC+150:D=D-1:X=X+1:GOTO4
ØØ
350 IFK$=CHR$(9) AND SCRN(X+1,Y)<106 THEN X=X+1:GOTO40
360 IFSCRN(X,Y+1)=105 THEN SC=SC+150:D=D-1:Y=Y+1:GOTO4
20
370 IFK$=CHR$(10)AND SCRN(X,Y+1)<106 THEN Y=Y+1:GOTO40
380 IFSCRN(X,Y-1)=105 THEN SC=SC+150:D=D-1:Y=Y-1:GOTO4
00
```

Find the to escape at the Mouldfillive

Here's a treat for two games to you emerge wear Pyramid? And the deadly attempted



keys e... he to

type in. Will thy from the n you avoid tions of the sh?

```
390 IFK $= CHR $ (11) AND SCRN(X, Y-1) < 106 THEN Y=Y-1
 400 IFY=7THEN GOSUB 2000
 410 IFX<=1 THEN X=2
 420 PLOTX,Y,"h"
 430 PLOTMX, MY, " "
 450 IFMY<Y AND SCRN(MX, MY+1)<106THEN MY=MY+1:GOTO510
 460 IFMX<X AND SCRN(MX+1,MY)<106THEN MX=MX+1:GOTO490
 470 IFMY>Y AND SCRN(MX, MY-1)<106THEN MY=MY-1:GOT0490
 480 IFMX>X AND SCRN(MX-1, MY) < 106THEN MX=MX-1
 490 IFMX<=1 THEN MX=2
 510 PLOTMX, MY, "!"
 520 IFSCRN(X,Y)=33 THEN 1900
 530 GOTO312
1800 PLOTX,Y,"m":GOSUB2200
1810 LI=LI-1: IFLI<=0THEN 2100
1820 CLS:PLOT9,13,"YOUR BONUS HAS RUN OUT": WAIT50
1830 PLOT11,15,N$:WAIT90
1835 GOSUB2600
1840 GOTO45
1900 PLOTX,Y,"m":GOSUB2200
1910 LI=LI-1: IFLI<=0THEN 2100
1920 CLS:PLOT9 ,13, "THE MONSTER GOT YOU": WAIT50
1930 PLOT11,15,N$: WAIT90
1935 GOSUB2600
1940 GOTO45
2000 IFD<=0 THEN 2020
2010 Y=8: RETURN
2020 IF LI<5 THEN LI=LI+1
2030 L=L+1:SC=SC+BO:GOSUB 2600
2035 CLS
2040 PLOT9,13,CHR$(142)+" CONGRATULATIONS"
2050 PLOT9,14,CHR$(142)+" CONGRATULATIONS"
2060 PRINT: PRINT"YOU HAVE GOT "L" PARTS OF THE LEBASI"
:PRINT
2070 PRINTSPC(14) "TREASURE": WAIT200
2080 PRINT:PRINTSPC(11)N$:WAIT100
2090 GOTO45
2100 CLS
2105 PRINT"YOU HAVE NO MORE LIVES LEFT": PRINT
2110 PRINT"YOUR SCORE IS "SC:PRINT
2120 PRINT"YOU HAVE "L" PART(S) OF THE LEBASI TREASURE
2130 PRINT: PRINT"GET READY FOR ANOTHER GAME"
2140 WAIT 2000:GOTO 27
2200 FORT=12 TO 1 STEP-1:WAIT10
2230 MUSIC1,6,T,10
 2240 NEXTT:PING
2250 WAIT100
2260 RETURN
2600 IF SC>8000 THEN D=5 ELSE D=4
2610 IF SC>16000 THEN D=6
2620 IF SC>24000 THEN D=7
2630 RETURN
2990 REM GRAPHICS + VARIABLES
3000 FORT=46344 TO 46351:READG:POKET,G:NEXTT
3010 FORT=46376 TO 46391:READG:POKET,G:NEXTT
3020 FORT=46912 TO 46919: READG: POKET, G: NEXTT
3030 FORT=46920 TO 46927: READG: POKET, G: NEXTT
3040 FORT=46928 TO 46935: READG: POKET, G: NEXTT
3050 FORT=46936 TO 46943:READG:POKET,G:NEXTT
3060 FORT=46944 TO 46951: READG: POKET, G: NEXTT
3070 FORT=46952 TO 46959: READG: POKET, G: NEXTT
3100 DATA 20,42,8,20,28,28,34,34
3110 DATA 0,1,3,15,30,60,62,63,0,0,32,56,60,62,62,62
```

```
3120 DATA 12,18,12,15,12,20,34,51
3130 DATA 2,10,14,10,2,2,7,7
3140 DATA 63,63,63,63,63,63,63
3150 DATA 32,48,48,56,60,62,62,63
3160 DATA 1,3,3,7,15,31,31,63
3170 DATA 4,4,31,4,4,4,14,31
318Ø SC=Ø:LI=3:D=4
3190 N$="HERE WE GO AGAIN"
3200 RETURN
3540 CLS:PRINTSPC(11) "P Y R A M I D"
3550 PRINT:PRINT:PRINT
3560 PRINT"THE OBJECT OF THE GAME IS TO GET IN":PRINT
3570 PRINT"THE FIRST GAME AT LEAST 4 KEYS FROM": PRINT
3580 PRINT"THEN ON EVERY 8000 POINTS YOU NEED": PRINT
3585 PRINT"ONE EXTRA KEY UNTIL YOU NEED ALL 7. ": PRINT
3590 PRINT"YOU THEN GO TO THE ROOM AT THE TOP": PRINT
3600 PRINT"OF THE PYRAMID TO GET A PART OF THE": PRINT
3610 PRINTSPC(11) "LEBASI TRESURE"
3620 PLOT13,26, "PRESS A KEY"
3630 GETAS: RETURN
```

Listing for Electric Eel

```
1 REM ELECTRIC EEL by Simon Overy
10 GOSUB9000
20 TEXT: CLS: PAPER1: INKØ
21 PRINTSPC (50); CHR$ (4); CHR$ (27);
22 PRINT"NELECTRIC EEL"; CHR$(4)
23 SOUND1,37,0:SOUND2,75,0
24 PLAY3,0,1,4000
25 PLOT13,10,"By Simon Overy": WAIT300
40 GOSUB160:GOSUB7000:GOSUB6000
50 GOSUB5000:GOSUB4000
90 IFYN$="Y"THEN40
95 POKE48035,7:CLS:EXPLODE:END
160 CLS: PAPER3: PRINTSPC (76)
170 PRINT, "You are an ELECTRIC EEL
180 PRINT, "and must swim around the "
190 PRINT, "aquarium eating MOULDFISH"
200 PRINT,"([) but avoiding SPIKE "
210 PRINT, "FISH( \ ), the glass sides"
220 PRINT, "and your own tail!
230 PRINT,"
              A loud noise indicates"
240 PRINT, "that you must swim to the"
250 PRINT, "top before your oxygen
260 PRINT, "runs out. Once you are
270 PRINT, "fully oxygenated you can "
275 PRINT, "either turn left or right"
276 PRINT, "You can only surface when"
280 PRINT, "in need of oxygen . ": PRINT
285 PRINT" HINT: Spikefish have side suction !?!?":
290 FORI=19TO24:PLOT1, I, 21:NEXTI
300 PLOT2,19, "SCORING: -"
310 PLOT9,21, "The deeper the better!"
320 PLOT2,23, "ARROW KEYS TO MOVE"
330 PLOT1,25, "Hit any key for a swim...":GETK$
340 FORI=1T015:SOUND1,T(I)*10,0
350 SOUND2,T(I)*100,0:SOUND3,T(I)*200,0
360 PLAY 7,0,1,2000: WAIT35: NEXTI
370 RETURN
```

Pyramid by Sean Rogers

You have just had the misfortune of being transported to the inside of a pyramid from which there seems to be no escape.

How it works

10-27 set colour, turn off caps, cursor and key-click, reset DATA pointer

30-40 branch to user-defined graphics and instructions

45 sets variables

47-317 set up screen

318-420 move you around screen, check for keys, plot you on screen

430-530 move monster and check if you have been killed 1800-1940 routine for when bonus runs out and for when the monster gets you

2000-2090 check if you have enough keys if you make it to the top

2100-2140 message when all lives lost

2200-2260 music

2600-2630 routine to see how many keys are needed 3000-3170 user-defined graphics

3180-3190 more variables 3540-3630 instructions

You must run around and collect the required number of keys and then make your way to the top to get a part of the Lebasi treasure.

Do this as fast as possible and you'll get a good bonus.

By the way, watch out for the monster!

Main variables

X,Y your position BO bonus LI lives SC score MX,MY monster's position

Movement is by the cursor keys.

The pyramid might look a bit like a Christmas tree, but I needed the space.

When your bonus drops below 1,000 the fourth digit will stay at 0 and so on. This will make it harder to notice when your bonus is low.

Hints on conversion
PLOT in Oric BASIC is the same
as PRINT AT. The Oric uses an
8 x 6 grid for user-defined
graphics compared with the 8 x 8
of most other computers.



Electric Eel by Simon Overy

You are an eel in a large aquarium and to stay alive you must swim about eating one kind of fish but avoiding the other type.

How it works

20-25 title
160-330 instructions
340-360 tune
4000-4080 end of game
5000-5910 main game routine
6000-6170 display start screen
7000-7010 set game variables
9000-9530 initialisation and userdefined graphics

A loud continuous noise tells you that you are short of oxygen and must swim to the surface within a certain time.

The deeper the Mouldfish are the more points you will score for eating them. The eel increases in length every time it eats something.

The game ends when either your oxygen runs out, you are hit — or touched horizontally — by a Spikefish, or there are no Mouldfish left.

Variables

SC present score
HI high score
OX indicates oxygen needed
XC counter for oxygen left
EP(I,J) position of eel
EF,EB front, back of eel
MF(I,J) position of Mouldfish
MC counter for Mouldfish left
EX,EY direction of eel
T(I) tune array

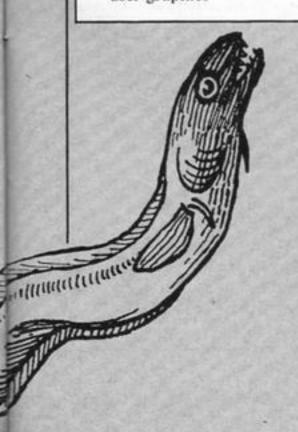
Hints on conversion

Leave out all the POKEs and use your own computer's clock. Omit double height title (CHR\$s 4 and 27) and change 6000-6170 to suit your own screen.

POKE 48035,7 turns CAPS off POKE (hash)26A,10 turns off key-click and cursor

DOKE 630,n controls internal timer

CHR\$s 91, 92 and 93 are the user graphics



4000 FORI=100T0500STEP2 4010 SOUND1, I, 10 4020 NEXTI 4030 CLS:PAPER5:INK4:PRINTCHR\$(4):ZAP 4040 PRINTSPC(160); CHR\$(27); "JS C O R E] "; STR\$(SC) 4050 IFSC>HITHENHI=SC:HI =RIGHT (STR (SC), LEN (STR (SC))-1)4060 PRINTCHR\$(4) 4070 PLOT1, 20, "Hit 'Y' for play, any other to stop." 4080 K\$=KEY\$:GETYN\$:RETURN 5000 DOKE630,1600 5008 REPEAT 5015 RR=RND(1) 5016 IFRR<0.01ANDOX=0THENOX=1:XC=0 5017 IFOX=1THENGOSUB5800 5020 SS=SCRN(EP(EF,1),EP(EF,2)) 5030 IFSS=32THENGOSUB5070:GOTO5055 5040 IFSS=91THENGOSUB5180:GOTO5055 5052 SS=1:PLOTEP(EF,1),EP(EF,2),93 5055 UNTIL MC=0 OR SS=1 OR XC=35 5060 RETURN 5070 PLOTEP(EF,1), EP(EF,2),93 5080 PLOTEP(EB,1), EP(EB,2),32 5090 EF=EF+1:EB=EB+1 5100 IFEF=401THENEF=1:WP=399:GOTO5125 5110 IFEB=401THENEB=1 5120 WP=-1 5125 K\$=KEY\$: IFK\$<>""THENGOSUB5500 5130 EP(EF,1)=EP(EF+WP,1)+EX:EP(EF,2)=EP(EF+WP,2)+EY 5140 IFDEEK (630) > 1000THEN5170 5150 PLOTMF (MC, 1), MF (MC, 2), 32: MC=MC-1 5160 DOKE630,1600 5170 RETURN 5180 PLAY 7,0,1,2000 5190 SOUND 1,100,0 5200 SOUND 2,500,0 5210 SOUND 3,999,0 5220 SC=SC+(10*EP(EF,2)):GOSUB5900 5230 FORI=1TOMC 5240 IFMF(I,1)=EP(EF,1)ANDMF(I,2)=EP(EF,2)THENII=I 525Ø NEXTI 5260 PLOTMF(II,1),MF(II,2),32 5270 X=INT(RND(1)*35)+2:Y=INT(RND(1)*22)+3 5280 IFSCRN(X,Y)<>32THEN5270 5290 MF(II.1)=X:MF(II.2)=Y:PLOTX,Y,91 5300 IFEB>3THENEB=EB-3 5320 II=0:DOKE630,DEEK(630)+350 5330 RETURN 5500 K=ASC(K\$) 5510 IFK=8THENEX=-1:EY=0 5520 IFK=9THENEX=1:EY=0 5530 IFK=10THENEX=0:EY=1 5540 IFK=11THENEX=0:EY=-1 555Ø RETURN 5700 EP(EF,2)=EP(EF,2)+1 5702 TT=DEEK(630):GETK\$:GOSUB5500:DOKE630,TT 5703 EP(EF,1)=EP(EF,1)+EX 5705 EY=0:0X=0:XC=0 5710 RETURN 5800 IFEP(EF,2)=2THEN5700 5805 SOUND1,1000,0:SOUND2,300,0:PLAY3,0,1,2000

ORIC PROGRAMS

5810 XC=XC+1:RETURN

5900 PLOT10,26, RIGHT\$ (STR\$ (SC), LEN (STR\$ (SC))-1)

5910 RETURN

6000 TEXT:CLS:PAPER4:INK2

6010 FORI=0T02:FORJ=1T038:PLOTJ,I,22:NEXTJ,I

6020 PLOT1,26,23:PLOT2,26,0

6030 PLOT3,26, "SCORE: "

6040 PLOT20,26,"HIGH: ": PLOT26,26,HI\$

6050 FORI=3T024

6060 PLOT1, I, 148: PLOT38, I, 148

6070 NEXTI

6080 FORI=1T038:PLOTI,25,148:NEXTI

6090 FORI=1T010

6100 X=INT(RND(1)*32)+4:Y=INT(RND(1)*19)+4

6110 IFSCRN(X-1,Y)<>320RSCRN(X,Y)<>320RSCRN(X+1,Y)<>32

THEN6100

6120 PLOTX-1, Y, SF\$

6130 X=INT(RND(1)*35)+2:Y=INT(RND(1)*19)+4

6140 IFSCRN(X,Y)<>32THEN6130

6150 PLOTX, Y, 91:MF(I, 1) = X:MF(I, 2) = Y

6160 NEXTI

6170 RETURN

7000 SC=0:EF=10:EB=1:EX=0:EY=-1:MC=10

7010 EP(10,1)=2:EP(10,2)=24:RETURN

9000 DIMEP (400,2),T(15)

9010 POKE#26A,10:POKE48035,0

9030 FORI=46808T046831

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TBA TBA

9040 READJ:POKEI,J

9050 NEXTI

9060 SF\$=CHR\$(1)+"\"+CHR\$(2)

9070 FORI=1T015:READJ:T(I)=J:NEXTI

9080 RETURN

9500 DATA 12,12,18,30,33,33,45,18

9510 DATA 0,18,45,12,12,45,18,0

9520 DATA 12,18,33,45,45,33,18,12

9530 DATA 5,15,25,15,8,9,10,5,15,

25, 15, 8, 12, 16, 20

27.50 27.50 TBA TBA TBA

57.50 57.50 57.50 57.50

56.93 56.93 56.93 56.93 56.93

TBA

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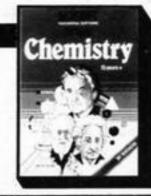
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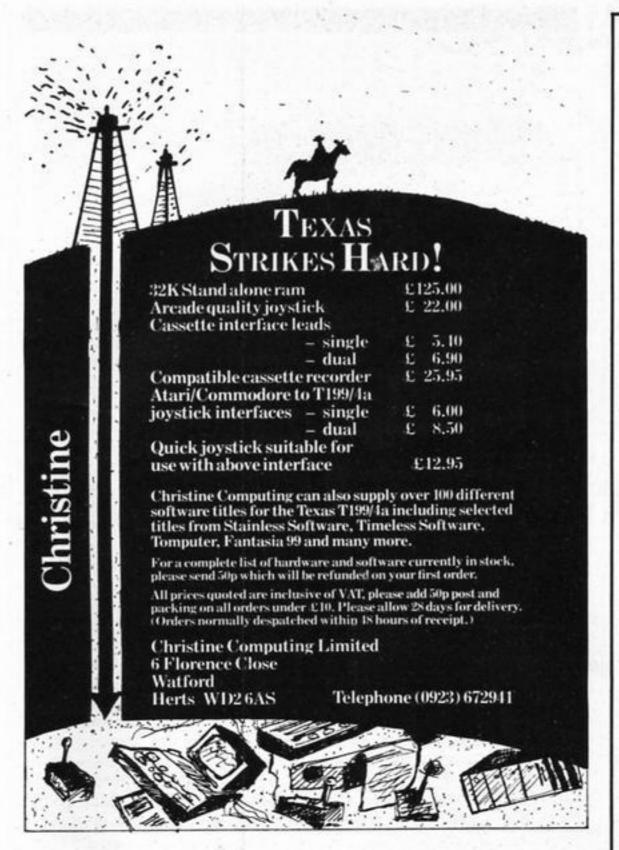


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MATHS PART II

MATHS PART I

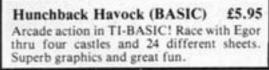
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U.S. SCENE

Sales slow for IBM micro

Let's start this week's column with a few items of general interest. On a seemingly contradictory note, IBM has announced that it expects to increase production of its personal computers by about 300 per cent this year. At the same time, dealers selling the new PC jr. have stated that their sales have been running far below expectations. I feel the main reason for this is a contradiction between the price of the unit and its capabilities.

For obvious reasons, IBM did not want to make the machine compatible with its big brother the PC. Yet most dealers feel that they could sell lots more of the machines if they came with a better keyboard, more memory expansion capability, and a second disc drive. With all these limitations, coupled with an over-\$1,000 price tag, the machine seems to be suffering from a confusing market image. Business users look to it to be used as a small business computer, yet the Apple IIe or the Kaypro (to cite but two examples) cost less while offering more. On the other hand, in its most basic form, the machine is still very expensive and limited in performance compared with other units designed for use in the home.

Apparently IBM has loads of the machines awaiting shipment in various warehouses. In order to improve sales, some dealers have been discounting jr. systems as much as \$300 down from the \$1,700 list price, and including up to four free software packages. Other dealers are offering the \$669 machine (in its most basic form) for free if the purchaser buys a complete system. It appears as though IBM is waiting to let the marketplace decide into what niche the machine will fit, and is also waiting to see what sort of software will be developed for it. This is no surprise as this is exactly the same approach it used when the PC was debuted.

One thing is for sure: with such a fabulous marketing budget and the name IBM behind it, the firm need not produce the best product in order to survive. We shall certainly see what happens.

\star \star \star

I always wanted to know exactly how much money schools were spending on computers — and now I have a fairly good idea. A recent study, called Microcomputer Hardware and Software in the El-Hi Market, 1983-87 has just been completed by Knowledge Industry Publications, of White Plains, New York. The El stands for elementary and the Hi stands for junior and high schools, by the way.

Among other interesting statistics, we learn that these schools bought \$448m-worth of microcomputer equipment last year of which only \$38m was spent on software. Schools purchased about 180,000 microcomputers, bringing the total in use to approximately 400,000. The study guesses that this cumulative total could rise to as much as 2m units in use by the end of 1987. Apparently more than two-thirds of all schools have at least one desktop computer.

So what is in use? Apple, Radio Shack (Tandy to you), and Commodore supplied 87 per cent of all computers purchased by schools last year. No surprise there, I suppose. This study, by the way, did not mention either the number of items or the dollar value of computers and software that has been donated to schools. Now that would be an interesting statistic!

That's all for this week.

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1 Chequered Flag

2 Jet Set Willy

3 Atlc Atac 4 Scuba Dive

5 Hunchback 6 Filght Simulation

7 Pogo **8 Lunar Jetman**

9 Cyrus-Is-Chess

10 Ant Attack

Ultimate (5) Software Project (-)

Psion (1) Durell (7)

Ocean (3) Psion (8)

Ocean (-) Ultimate (9) Intelligent Software (6)

Quicksilva (2)

COMMODORE 64

1 Manic Miner

2 Quick Thinking. 3 Caesar the Cat

5 Revenge of the Mutant Camels 6 Mr Wimpey

4 Hunchback

7 Space Pilot 8 UGH!

9 International Football

10 Buga Boo

(The Flea)

Software Projects (5) Mirrorsoft (-) Mirrorsoft (-) Ocean (-)

Llamasoft (3) Ocean (8) Anirog (-) Softek (-)

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Quicksliva (2)

DRAGON 52

1 Dragon Chess

2 UGH!

3 Hungry Horace

4 Chuckie Egg

5 Krieg Spiel

6 Pearo

7 Up Periscope

8 Space Shuttle

9 Devil Assault

10 Cuthbert in the

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MC-20

1 Snooker 2 Flight 015

3 Wizard and the Princess 4M.L.B.A.E.T. 5 Crazy Kong

6 Jetpac 7 Emmet Attack 8 Gridrunner 9 Carrier Attack

10 Dam Buster

Visions (1) Ferranti/ Davenport (4)

M. House (3) Llamasoft (-) Interceptor (2) Ultimate (5) Commodore (-) Llamasoft (6) Rabbit (-) Rabbit (-)

33C

10 Man

20 Man Brother

3 737 Simulator 43D Munchy

5 Diamond Mine

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7747 Simulator 8 Hunchback

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> Salamander (8) MRM (-) MRM (-)

Micro Power (5) Doctorsoft (-) Superior (4) Micro Power (2) BBC (9)

ZX3I

1 Mothership 2 Fantasy Games

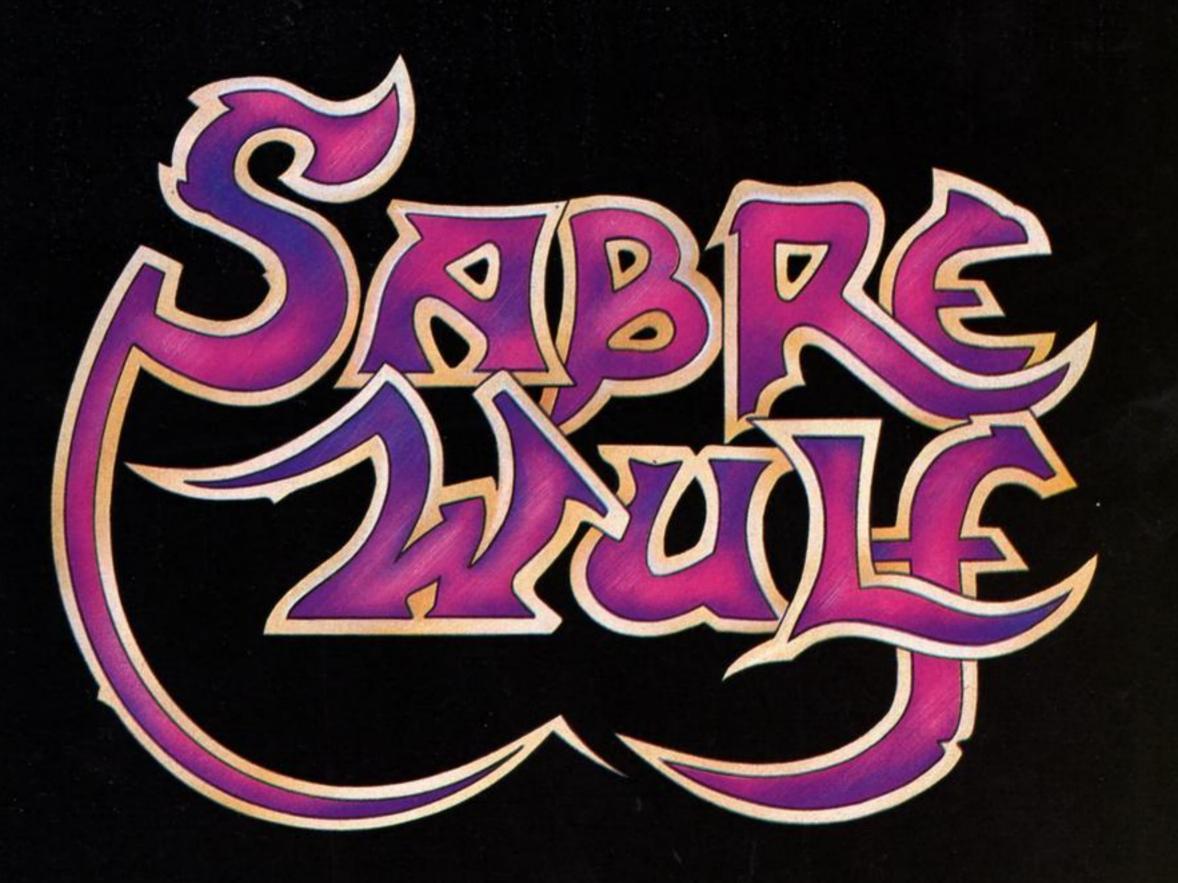
3 Space Raiders 4 Asteroids

5 Football Manager 6 Flight Simulation 7 Skramble

8 Invaders 9 Defenders 10 VU-File

Sinclair (1) Sinclair (3) Sinclair (5) Quicksilva (6) Addictive (9) Sinclair (3) Quicksilva (7) Quicksilva (-) Oulcksliva (10) Sinclair (-)







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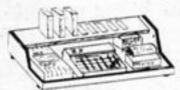
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